



KERALA MEDICAL TECHNOLOGY CONSORTIUM (KMTTC)

IN

ASSOCIATION WITH



**NATIONAL INSTITUTE OF PHYSICAL MEDICINE &
REHABILITATION (NIPMR), THRISSUR**

9TH

STAKEHOLDERS CONNECT MEET (SCM) MAY 2024

**AUDITORIUM, 3RD FLOOR. NATIONAL INSTITUTE OF PHYSICAL
MEDICINE AND REHABILITATION (NIPMR), KALLETUMKARA,**

THRISSUR, KERALA

25TH MAY 2024

POST-MEET REPORT

31 ST JULY 2024

REPORT CONTENTS

1. INTRODUCTION.....	3
2. PROGRAM INVITE	5
3. BRIEF SUMMARY OF THE MEET.....	8
4. INSIGHTS & TAKEAWAYS.....	38
5. ATTENDANCE & PARTICIPATION.....	41
6. MEET FEEDBACK FROM DELEGATES	41
7. ANNEXURE	44
7.1 PROGRAM AGENDA	44
7.2 LIST OF PARTICIPANTS	48
7.3 PRESENTATIONS	52

1. INTRODUCTION

This document provides a comprehensive overview of Kerala Medical Technology Consortium's (KMTC) 9th Stakeholders Connect Meet (SCM), hosted by the National Institute of Physical Medicine and Rehabilitation (NIPMR) at their premises in Thrissur on May 25, 2024. The Meet aimed to foster collaboration and innovation in the Assistive Technology (AT) sector, aligning with KMTC's vision of establishing Kerala as a global hub for medical devices and technologies.

The **Kerala Medical Technology Consortium (KMTC)** is a pivotal organization working towards the development and promotion of the Medical Devices / Medical Technology sector in Kerala. KMTC's mission is to create a conducive ecosystem for research, innovation, and manufacturing of medical devices, thereby positioning Kerala as a leader in the global medical technology landscape. The consortium actively engages with various stakeholders, including government bodies, healthcare providers, academic institutions, and industry leaders, to drive growth and excellence in this field.

The **Stakeholders Connect Meet (SCM)** is an important initiative by KMTC, designed to bring together diverse stakeholders involved in the medical technology sector. These meetings serve as a platform for knowledge exchange, networking, and collaboration, addressing the pressing issues and exploring new opportunities within the sector. The 9th SCM specifically focused on Assistive Technology (AT), reflecting KMTC's commitment to enhancing the quality of life for individuals with disabilities through innovative solutions.

The 9th KMTC SCM brought together a diverse group of stakeholders, including policymakers, healthcare professionals, researchers, entrepreneurs, and industry experts. The primary focus was to explore the current landscape, challenges, and opportunities in the AT sector, with a special emphasis on making Kerala a leading state in AT innovation and manufacturing.

The Meet featured a series of sessions, each dedicated to different aspects of AT, ranging from policy discussions to startup pitches. Keynote addresses by eminent personalities provided deep insights into the global and local trends in AT, while panel discussions highlighted the practical challenges and potential solutions in the field.

THE MEET IN BRIEF

The proceedings began with an inaugural session that set the tone for the day's discussions. The Chief Guest as well as Keynote Speakers emphasized the importance of developing a robust AT ecosystem in Kerala, citing the state's unique advantages such as its skilled workforce, strong healthcare infrastructure, and supportive government policies.

Throughout the day, various sessions covered critical topics, including:

- **Assistive Technology Policy:** Discussions on the ongoing efforts to draft a comprehensive AT policy for Kerala, addressing regulatory, financial, and infrastructural needs.
- **Latest Trends and Market Potential:** Analysis of the immense opportunities in the AT market, particularly focusing on essential products and the untapped potential in the sector.
- **Challenges and Solutions:** Panel discussions delved into the technical, logistical, and awareness-related challenges in AT manufacturing and adoption, proposing actionable solutions.
- **Startup Showcase:** Innovative startups presented their cutting-edge AT solutions, demonstrating the vibrant entrepreneurial spirit in the sector and the support provided by programs like Attvaran.
- **Future Directions:** Sessions on the future prospects of AT in Kerala, highlighting the role of key institutions like NIPMR and NISH, and the need for enhanced collaboration and policy support.

A comprehensive visit and tour were organized by the NIPMR team for all participants, providing them with a firsthand look at the facilities and ongoing projects. This visit offered valuable insights into the practical applications and research being conducted at NIPMR.

Additionally, the venue featured small booths showcasing various AT products, allowing participants to engage with the latest innovations and interact with the developers and manufacturers behind these technologies.

The Meet concluded with a wrap-up session summarizing the key takeaways and outlining the next steps to advance the AT sector in Kerala. This report encapsulates the rich discussions and insights shared during the Meet, offering a strategic roadmap for stakeholders committed to transforming Kerala into a global leader in Assistive Technology.

2. PROGRAM INVITE

**INVITATION TO THE
9TH KMTC STAKEHOLDERS CONNECT MEET (SCM) ON SATURDAY, 25TH MAY
2024
AT NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION
(NIPMR), THRISSUR**

DATE	SATURDAY 25 TH MAY 2024 9:30 AM – 4:30 PM*
VENUE	AUDITORIUM, 3 RD FLOOR NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR), THRISSUR, KERALA <u>ON GOOGLE MAPS</u>
THEME	INNOVATING TOGETHER: ADVANCING ASSISTIVE TECHNOLOGY FOR ALL

We are thrilled to extend our warm invitation to you as a valued stakeholder in the Kerala MedTech ecosystem to the 9th KMTC Stakeholders Connect Meet (SCM), organised by the Kerala Medical Technology Consortium (KMTC) in association with the National Institute of Physical Medicine & Rehabilitation (NIPMR). KMTC's periodic one-day SCM has quickly become a highly anticipated interactive event in the Kerala MedTech ecosystem. The theme for this Meet is 'Innovating Together: Advancing Assistive Technology for All', highlighting the critical role of collaboration and innovation in developing effective assistive technologies that cater to diverse needs and fill gaps across various populations and segments.

*PLEASE NOTE THAT REGISTRATION WILL START AT 8:30 AM AT THE VENUE

The theme will center on fostering innovation and collaboration with the overarching goal of enhancing accessibility and practicality in assistive technologies. AT is crucial for improving the quality of life for individuals with disabilities, offering them greater independence and inclusion in society. However, the path to creating effective and universally accessible AT is fraught with challenges such as adopting user-centric design and meeting diverse user needs, ensuring affordability, and integrating cutting-edge technologies.

This theme not only highlights the importance of collaborative efforts in overcoming these obstacles but also encourages a proactive dialogue among stakeholders to innovate practical solutions that address these challenges.

KMTC SCMs provide an exceptional platform for stakeholders in the Kerala MedTech ecosystem to come together, exchange insights, and contribute towards the advancement of MedTech / Medical Devices development in Kerala. Here's what you can expect from this engaging event:

1. **Enlightening Presentations:** Renowned experts in the field of assistive technology innovation and device development will share their knowledge and experiences, shedding light on the innovative processes behind developing practical and accessible devices. They will explore how strategic collaborations and advancements in technology enhance the functionality and usability of assistive devices, directly impacting the quality of life for individuals with disabilities. Attendees will gain critical insights into emerging trends, best practices, and regulatory frameworks that govern the assistive technology sector..
2. **Panel Discussions and Interactive Sessions:** Panel Discussions and Interactive Sessions: Engage in stimulating panel discussions with industry leaders, researchers, and professionals, fostering dynamic exchanges of ideas and experiences. Participate in interactive sessions to discuss challenges, opportunities, and collaborative approaches to advancing medical device development in Kerala.
3. **Networking Opportunities:** Connect and network with like-minded stakeholders from across the Kerala MedTech ecosystem, including researchers, clinicians, entrepreneurs, industry representatives, healthcare professionals, and policymakers. Forge new partnerships, strengthen existing collaborations, and build a robust network of professionals passionate about transforming lives through innovative assistive technologies.
4. **Showcasing Institutions and Innovators:** Get to know about the diverse cutting-edge projects and ongoing applied research in assistive and other medical devices and technological advancements by local research institutions, academia, companies, startups and innovators. Stay ahead of the curve with strategic insights from the who's who of the Kerala MedTech ecosystem.

Whether you are a startup, an established company, a researcher, or a regulator, this event will provide valuable insights and networking opportunities to help you successfully navigate innovation and development of AT / MedTech products. Don't miss this opportunity to connect with fellow stakeholders and learn from the best in the field!

The Government of Kerala is committed to transitioning the state's economy into a high value, knowledge-based economy. This is in alignment with Kerala's inherent advantages over other parts of the country, taking into consideration the rich natural resources, skilled talent, and some ground-breaking research institutions. The Govt recognizes the immense potential that Kerala has in an industry like Medical Devices, Medical Technology, which is an R&D

intensive domain requiring specialised expertise and knowledge and has designated it a priority sunrise sector.

Kerala Medical Technology Consortium (KMTC) is a flagship endeavour of the Govt of Kerala, initiated in June 2022, to establish Kerala as the Top Medical Devices / Medical Technology Hub of India in the next decade. One of the key strategies identified early on to achieve this ambitious goal, is to bring together the existing ecosystem of industry, researchers, academia, startups, hospitals, regulators, policymakers, suppliers, distributors and Govt agencies, to meaningfully interact and exchange ideas and information, and to catalyse close clusters of partnerships & collaborations.

The KMTC Stakeholder Connect Meet (SCM) is a periodic ecosystem-building platform that is designed to bring all stakeholders in the Kerala MedTech Ecosystem together and is especially focused on connecting academia and research with industry. The KMTC SCM is a great opportunity for stakeholders to keep themselves updated on the latest developments in the ecosystem, find strategic partners and explore growth opportunities.

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3. BRIEF SUMMARY OF THE MEET

1.0	INAUGURAL SESSION
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The Meet started out with a short but meaningful Inaugural Ceremony where important dignitaries, experts and thought leaders set the context for the day of sessions and discussions.

1.1	WELCOME ADDRESS – MR CHANDRABABU C, EXECUTIVE DIRECTOR, NATIONAL INSTITUTE OF PHYSICAL MEDICINE AND REHABILITATION (NIPMR)
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Mr Chandrababu C extended a warm and hearty welcome to all dignitaries on the dais, and to all participants and delegates including researchers, innovators, investors, non-profit organizations (NGOs), industry representatives, policymakers, caregivers, startup entrepreneurs, senior faculty, and representatives from incubators and accelerators/Technology Business Incubators (TBIs).

He expressed NIPMR’s delight in organizing the 9th KMTC Stakeholders Connect Meet in collaboration with the Kerala Medical Technology Consortium (KMTC). He highlighted NIPMR’s commitment to advancing innovation and enhancing accessibility in the field of Assistive Technology. Mr Chandrababu emphasized the importance of such gatherings in fostering collaboration and driving forward the development of practical, user-centric solutions that can significantly improve the lives of individuals with disabilities.

Mr Chandrababu was particularly appreciative of the Chief Guest, Dr R Bindu, Hon’ble Minister for Social Justice & Empowerment and Higher Education, Govt of Kerala, for her unwavering support and prioritization of crucial discussions on Assistive Technology. He also acknowledged the wholehearted support of experts like Dr Mohammed Asheel, World Health Organisation (WHO) whose wholehearted participation and contributions have been invaluable to this initiative.

1.2	OPENING ADDRESS – MR C PADMAKUMAR, SPECIAL OFFICER, KERALA MEDICAL TECHNOLOGY CONSORTIUM (KMTC)
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Mr C Padmakumar, in his opening address, highlighted the critical significance of the

assistive technology (AT) sector, emphasizing the urgent need for affordability and accessibility. He stressed the importance of establishing minimum quality standards for both AT and medical devices to ensure safety and efficacy. He pointed out the widespread ignorance and lack of knowledge about existing regulations governing AT and medical devices, which hampers the sector's growth and development.

Mr Padmakumar underscored KMTC's strategic focus on the assistive technology sub-segment due to its unique characteristics: the absence of big players, a largely untapped market, and the imperative for stakeholders to collaborate. He called for active participation from the community of persons with disabilities (PwDs), innovators, entrepreneurs, and industry leaders to create impactful, accessible, and affordable AT solutions.

He also highlighted Kerala's long legacy of social welfare, driven by progressive and inclusive policies and movements. This legacy, coupled with the rapidly growing elderly population, positions Kerala uniquely to innovate for both the domestic and global markets. Mr Padmakumar emphasized that Kerala's strengths in education, skilled talent, and a supportive policy environment make it an ideal hub for AT innovation and manufacturing.

In conclusion, Mr Padmakumar reaffirmed KMTC's commitment to fostering collaboration and innovation within the AT sector, with the ultimate goal of improving the lives of individuals with disabilities and the elderly through cutting-edge, affordable, and accessible technologies.

1.3	INAUGURAL ADDRESS – DR R BINDU , HON'BLE MINISTER FOR HIGHER EDUCATION AND SOCIAL JUSTICE & EMPOWERMENT, GOVERNMENT OF KERALA
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Dr R Bindu, Minister for Higher Education and Social Justice & Empowerment, inaugurated the 9th KMTC Stakeholders Connect Meet (SCM), themed "Innovating Together: Advancing Assistive Technology For All," at the National Institute of Physical Medicine and Rehabilitation (NIPMR), Thrissur. She expressed her delight at being part of this event, highlighting the significance of NIPMR as a pioneer institution in the field of physical medicine and rehabilitation.

VISION FOR A BARRIER-FREE SOCIETY: Dr Bindu underscored the vision of a "NavaKeralam" or New Kerala, aiming for a barrier-free society where every individual, regardless of their abilities, is included in the mainstream of life. She emphasized the importance of creating an

inclusive Kerala that supports individuals with disabilities through both low-tech and high-tech assistive technologies (AT).

SCOPE AND PERSONALIZATION OF ASSISTIVE TECHNOLOGY: The Minister spoke about the boundless scope and versatility of AT, which ranges from basic tools like felt boards to advanced devices such as prosthetics and communication software. She stressed that each person with a disability has personalized needs that require unique, tailored solutions crafted with care. AT plays a crucial role in medical technology, not just in diagnosis and treatment, but in empowering individuals to lead independent, dignified lives.

GLOBAL AND LOCAL CONTEXT: Dr Bindu highlighted the global context by referencing WHO estimates that over 1 billion people worldwide require one or more assistive products, with this number expected to rise exponentially. In India, the 2011 Census reported over 26 million people with disabilities, constituting about 2.2% of the population. In Kerala, the 2015 Disability Census estimated about 8 lakh (800,000) persons with disabilities, around 2.3% of the state's population. She emphasized that the demand for AT is increasingly pressing, particularly given Kerala's significant elderly population and the high prevalence of non-communicable diseases.

CHALLENGES AND OPPORTUNITIES: The Minister pointed out that more than 50% of persons with disabilities (PwDs) are unaware of assistive devices, presenting a substantial challenge. She called for a dual focus on innovation and accessibility, urging the development of practical, user-centric solutions. Dr Bindu highlighted the importance of fostering collaboration among researchers, industry leaders, and users to harness interdisciplinary research for technological advancements in AT.

AFFORDABILITY AND TRAINING: Dr Bindu stressed the need to make AT devices cost-effective, as many PwDs are also unemployed and cannot afford expensive equipment. She emphasized that innovation should aim to reduce costs while maintaining quality. Additionally, she highlighted the critical importance of training and capacity building, ensuring that users are properly trained to use these advanced devices.

ROLE OF KMTC AND NIPMR: The Minister praised the Kerala Medical Technology Consortium (KMTC) for its commitment to fostering collaboration and innovation within the ecosystem. She emphasized the unique role of NIPMR as a beacon of excellence, bringing

together multiple disciplines to serve as a catalyst for innovation in AT. The convergence of expertise at institutions like NIPMR and the National Institute of Speech & Hearing (NISH) positions them as pivotal in advancing Kerala's knowledge economy and building a barrier-free society.

GOVERNMENT COMMITMENT: Dr Bindu reaffirmed the Government of Kerala's commitment to transforming the state into a knowledge-based powerhouse by leveraging natural resources, skilled talent, and pioneering research institutions. She highlighted the designation of the Medical Devices and Medical Technology sector as a priority sunrise sector for strategic development.

CONCLUSION: In her concluding remarks, Dr Bindu expressed the hope that the Meet would address the needs of the most deprived in society, granting them equal opportunities for a dignified life. She encouraged collaborative research and knowledge sharing to foster innovation and achieve a truly barrier-free society. With these hopes and best wishes, she declared the 9th KMTC Stakeholders Connect Meet open.

1.4	KEYNOTE ADDRESS – DR B MOHAMMED ASHEEL, NATIONAL PROFESSIONAL OFFICER & COUNTRY FOCAL POINT FOR DISABILITIES, REHABILITATION AND ASSISTIVE TECHNOLOGY, WORLD HEALTH ORGANISATION (WHO)
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Dr B Mohammed Asheel, in his Keynote Address, emphasized the critical importance of making assistive technology accessible to all, ensuring that everyone benefits from advancements in this field. He highlighted that the average lifespan is 72 years, with individuals experiencing approximately 8 years of disability, underscoring the significant need for assistive technology.

Dr B Mohammed Asheel pointed out that the market for 21 essential assistive products is valued at Rs. 82,000 crores, yet remains largely untapped and unaddressed, with minimal interest from other sectors. He provided a striking example of the unmet need in the market, stating that 500,000 people require adult diapers daily for self-care.

He also highlighted the potential of Kudumbasree units for distributed manufacturing of assistive technology products, suggesting that leveraging such grassroots initiatives could

effectively address these significant needs. Dr Asheel mentioned that states like Tamil Nadu and Delhi have shown interest in advancing assistive technology, paving the way for broader adoption and innovation across the country.

In conclusion, Dr B Mohammed Asheel called for increased attention and investment in the assistive technology sector to tap into the vast market potential and meet the pressing needs of individuals requiring these products. He emphasized the importance of collaboration and innovative approaches to ensure that assistive technology solutions are widely accessible and affordable.

1.5	SPECIAL ADDRESS – MR MOIDEENKUTTY K, FORMER MANAGING DIRECTOR, KERALA STATE DIFFERENTLY ABLED WELFARE CORPORATION (KSDWC)
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Mr Moideenkutty K, in his Special Address, congratulated the Kerala Medical Technology Consortium (KMTC) on successfully conducting the 9th Stakeholders Connect Meet (SCM). He highlighted Kerala's global reputation as a model state in areas such as education, health, social security, and poverty elimination, particularly in its focus on marginalized communities.

He pointed out that approximately 4% of Kerala's population, or around 160,000 people, live with disabilities. Despite Kerala's advancements in many sectors, he noted that significant progress in Assistive Technology (AT) has been lacking over the past 5-6 years. He emphasized the urgent need for an AT policy in Kerala, noting that while there is a disability policy in place, it does not sufficiently address the specific needs of AT.

Mr Moideenkutty highlighted the importance of educational courses in AT, such as those offered at the National Institute of Physical Medicine and Rehabilitation (NIPMR), to build expertise and drive innovation in this field. He also stressed that Assistive Technology should be accessible to all, including the elderly, and that a comprehensive AT policy is essential for addressing the needs of all individuals requiring these technologies.

In conclusion, Mr Moideenkutty reiterated Kerala's potential to lead in the AT sector by leveraging its strong human development indicators, social security systems, and inclusive policies. He called for a concerted effort to develop and implement a robust AT policy to ensure that the state's 160,000 persons with disabilities receive the support and technologies they need for a better quality of life.

1.6	SPECIAL ADDRESS – DR SUJA K KUNNATH, EXECUTIVE DIRECTOR, NATIONAL INSTITUTE OF SPEECH & HEARING (NISH)
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Dr Suja K Kunnath, in her Special Address, highlighted the profound significance of Assistive Technology (AT) in enhancing the quality of life for many individuals. She emphasized that AT touches practically every aspect of life, providing essential support to those in need.

Dr Suja K Kunnath elaborated on the vast impact of AT, noting that it affects billions of people globally. She underscored the importance of continued innovation and accessibility in this field to ensure that AT solutions are available to all who need them. By fostering advancements in AT, we can significantly improve the daily lives and overall well-being of individuals with disabilities.

In conclusion, Dr Suja K Kunnath called for sustained efforts and collaboration among stakeholders to drive progress in AT, highlighting the potential for AT to transform lives and create a more inclusive society.

1.7	VOTE OF THANKS – MR REJEESH G R, GENERAL MANAGER (MARKETING), KERALA MEDICAL TECHNOLOGY CONSORTIUM (KMTC)
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Mr Rejeesh G R, delivered the Vote of Thanks to conclude the Inaugural Ceremony. He emphasized the importance of fostering an inclusive society, aligning with the broader vision of Kerala, often referred to as "God's Own Country." He acknowledged the significant efforts made towards achieving this goal, highlighting Kerala's commitment to inclusivity and social welfare.

Mr Rejeesh expressed his gratitude to all the dignitaries, speakers, and participants for their valuable contributions. He referred to the important insights shared by each speaker, including the need for innovation, accessibility, affordability, and collaboration in the Assistive Technology (AT) sector. He emphasized that achieving progress in AT requires a collective effort from all stakeholders, including government, industry, academia, and the community of persons with disabilities (PwDs).

In closing, Mr Rejeesh reiterated KMTC’s commitment to advancing the AT sector and fostering partnerships that drive meaningful change. He thanked everyone for their participation and support, looking forward to continued collaboration and success in building a more inclusive and accessible society.

2.0	EXPERTS SESSION INITIATION ON UNIVERSALISATION OF ASSISTIVE DEVICES SESSION BY EXPERTS FROM NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
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The SCM’s main sessions started off with partner and host NIPMR delivering the first Experts Session, where key resource persons from across the institution came together to talk about the capabilities and focus areas of research as well as interventions.

2.1	SESSION BY MS VIDHUPRIYA K K , ASSOCIATE PROFESSOR, BACHELOR IN PROSTHETICS & ORTHODONTICS (BPO) PROGRAMME
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Ms Vidhupriya K K, delivered a comprehensive session on the universalisation of assistive devices, emphasizing their critical role in enhancing the quality of life for individuals with disabilities.

KEY POINTS:

❖ **Introduction to Assistive Devices:**

- Assistive devices are external products designed to improve the functioning and independence of individuals with impairments, whether due to disease, disorder, injury, or aging.
- These devices help prevent impairments and secondary health conditions and include a wide range of products such as prosthetics, orthotics, wheelchairs, hearing aids, white canes, pill organizers, text-to-speech software, and incontinence pads.

❖ **NIPMR’s Role and Services:**

- NIPMR is renowned for advancing rehabilitation medicine and providing high-quality care. It plays a crucial role in research, education, and clinical services in physical medicine and rehabilitation.

- NIPMR provides customized aids and appliances through both institutional-based and community-based services, focusing on individuals with loco-motor disabilities.

❖ **WHO TAP Project:**

- NIPMR is the first institute in Kerala to implement the WHO TAP (Training in Assistive Products) project. This initiative aims to raise awareness about the need and use of assistive devices and provides training to health workers.
- The project significantly advances the fight against disability in Kerala by improving the lives of people with disabilities through better awareness and access to assistive devices.

❖ **Prosthetics and Orthotics Department:**

- The Department of P&O at NIPMR offers direct services, including detailed assessments and fabrication of customized prosthetic and orthotic devices.
- The department has advanced machinery and equipment to ensure high-quality service provision.

❖ **Service Statistics (2023-2024):**

- New cases registered: 247
- Follow-up cases: 138
- Total cases: 385
- Breakdown of devices provided includes lower and upper extremity orthotics, prosthetics, surgical shoes, spinal orthotics, mobility aids, and repair services.

❖ **Community-Based Rehabilitation (CBR):**

- NIPMR extends its services to less resourced settings through CBR, meeting assistive technology needs among vulnerable groups, including younger people.
- Outreach services include organizing camps at various panchayat levels, where devices are assessed, fabricated, and distributed.

❖ **Principles of Assistive Technology Provision:**

- The provision of assistive technology is guided by principles of Availability, Accessibility, Affordability, Adaptability, Acceptability, and Quality (5A & Q).

- These principles ensure that services and products are available, accessible, affordable, adaptable, acceptable, and of high quality to meet the diverse needs of individuals with disabilities.

❖ **Types of Assistive Devices:**

- Upper and lower extremity orthotics
- Spinal orthotics
- Upper and lower extremity prosthetics
- Mobility aids such as walking sticks, crutches, walkers, rollators, portable ramps, grab bars, transfer boards, therapeutic shoes, wheelchairs, and standing frames.
- Assistive technology for people with visual impairments, including screen readers, magnifiers, Braille, electronic books, and large print keyboards.

Conclusion: Ms. Vidhupriya concluded by highlighting the importance of making assistive technology available, accessible, and affordable to all who need it. She emphasized the role of NIPMR in leading this initiative and its commitment to improving the lives of people with disabilities through innovative and high-quality assistive products and services.

2.2	SESSION BY MR ABIRAM U, ASSISTANT PROFESSOR GRADE II, BACHELOR IN OCCUPATIONAL THERAPY (BOT) PROGRAMME
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Mr Abiram U from NIPMR delivered an insightful session on the role of assistive technology in enhancing functionality and independence for individuals with disabilities by delving deep into Occupational Therapy.

KEY POINTS:

❖ **Introduction to Occupational Therapy and Assistive Technology:**

- Occupational Therapy (OT) focuses on helping individuals with functional impairments to regain independence in their daily activities.
- OT practitioners use assistive technology and splints to bridge the gap between the person's current abilities and their desired functional outcomes.

❖ **Definition and Purpose of Splints and Assistive Devices:**

- Splints are orthotic devices used to support, immobilize, or protect a body part, assist in supporting function, and increase the range of motion.
- Assistive devices encompass a wide range of tools and equipment designed to enhance functional abilities and promote independence. Examples include adaptive feeding devices, communication tools, and mobility aids.

❖ **Key Features of Assistive Devices:**

- Uniqueness: Personalized and custom-made to fit the individual's needs.
- Affordability: Cost-effective solutions to ensure accessibility to a larger population.
- Ergonomic Design: Designed to be comfortable and practical for daily use.
- Holistic Treatment Model: Integrating the use of assistive devices into a comprehensive treatment plan.
- Function-Oriented Devices: Focus on improving specific functional outcomes.
- Proper Follow-Up: Ensuring the devices are used correctly and effectively.
- Low Fabrication Time: Quick turnaround in creating and delivering devices.

❖ **Challenges in the Field:**

- Technical Expertise: Need for collaboration with experts in electrical and mechanical engineering to develop advanced devices.
- Low Awareness: Limited public awareness about the availability and benefits of assistive devices.
- Establishing Evidence: Need for more research and evidence to validate the efficacy of assistive devices.
- Skilled Manpower: Shortage of trained professionals in the field of assistive technology.
- Outreach and Follow-Up: Difficulty in maintaining consistent follow-up with patients, especially in remote areas.

❖ **Current Scenario:**

- NIPMR started the splinting and assistive technology unit in 2018, catering to both inpatient and outpatient services.
- The unit receives referrals from various hospitals and centres across Kerala and serves as a model unit for other institutions in the state.

❖ **Examples of Assistive Devices and Splints:**

- Thermoplastic Splints: Custom-moulded splints for correcting deformities, improving positioning, and enhancing function.
- Functional Splints: Designed to aid in specific activities, such as grasping and holding objects.
- Adaptive Feeding Devices: Tools to assist individuals with limited arm function in feeding themselves.
- Modified Cars: Adaptations to vehicle controls for individuals with lower limb disabilities.
- Inclusive Clothing: Clothing designed to be easily worn by individuals with disabilities, enhancing their independence.
- Adaptive Devices: Examples include medicine organizers, bucket chairs, positioning devices, adapted spoons, and modified pens.

❖ **Future Intentions:**

- Reach the Unreached: Expanding services to more communities.
- Technology-Assisted Assessments and Follow-Up: Using teleconferencing and other technologies to improve patient assessments and follow-up care.
- Collaboration for Affordable Products: Working with various stakeholders to create efficient, scalable, and affordable assistive products.
- Research on Efficacy: Conducting research to establish the effectiveness of splints and assistive devices.
- Awareness and Early Intervention: Promoting early intervention to prevent complications and improve outcomes, including early splinting in NICUs to leverage brain plasticity at a very young age and improve outcomes for stroke patients.

Conclusion: Mr Abiram U concluded by emphasizing the importance of making assistive devices affordable, personalized, and widely available. He highlighted NIPMR’s ongoing efforts to innovate and improve the quality of life for individuals with disabilities through advanced assistive technologies.

2.3	SESSION BY MS PADMAPRIYA K , HEAD, DEPARTMENT OF AUDIOLOGY & SPEECH LANGUAGE PATHOLOGY
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Ms Padmapriya K delivered an insightful session on Augmentative and Alternative Communication (AAC) and other assistive technologies used in audiology and speech-language pathology. Her presentation highlighted various devices and their significance in improving communication and hearing for individuals with disabilities.

KEY POINTS:

❖ Introduction to AAC Devices:

- Augmentative and Alternative Communication (AAC) devices help individuals with communication disorders to express themselves.
- These devices range from simple picture boards to sophisticated computer programs that synthesize speech from text.

❖ Types of AAC:

- Unaided Communication: This includes non-spoken means of natural communication such as gestures, facial expressions, and manual signs. These methods often require adequate motor control and communication partners who can interpret the intended messages.
- Aided Communication: This requires external support like communication boards with symbols, computers, handheld devices, or tablet devices with speech-generating software. Aided communication can range from low-tech methods like picture boards to high-tech devices like speech-generating software.

❖ Low-Tech and High-Tech AAC Devices:

- Low-Tech Devices: Examples include communication boards, communication books, and the Picture Exchange Communication System (PECS). These tools help individuals communicate basic needs through pictures and symbols.
- High-Tech Devices: These include advanced AAC devices such as the Big Mack, which is a single-message speech-generating device, and the Super Talker Progressive Communicator, which can record and play multiple messages. Avaz is another high-tech AAC app that empowers individuals with speech delays to communicate using iOS and Android devices.

❖ Hearing Aids and Cochlear Implants:

- **Hearing Aids:** Small electronic devices worn in or behind the ear to amplify sounds for individuals with hearing loss. They help users hear more clearly in both quiet and noisy situations.
- **Cochlear Implants:** Surgically implanted neuro-prostheses that provide sound perception to individuals with moderate to profound sensorineural hearing loss. Post-surgery, patients undergo auditory verbal therapy to develop normal speech and language skills.

❖ **Additional Assistive Devices:**

- **Big Track Ball and Clevy Keyboard:** Assistive devices that simplify the function of a mouse and keyboard. The Clevy Keyboard uses colour coding to help users identify keys more easily.
- **Head Pointer:** Used by individuals with limited hand mobility to interact with devices using head movements.

❖ **Challenges in AAC Adoption:**

- **Acceptance:** One of the main challenges is the acceptance of AAC devices by parents and families. Despite counselling, some family members, especially grandparents, may be reluctant to use these devices.
- **Cost:** The high cost of AAC devices can also be a barrier to accessibility.

❖ **NIPMR's Role and Services:**

- NIPMR provides comprehensive audiology and speech-language pathology services, including detailed evaluations and the provision of hearing aids and cochlear implants.
- The institute conducts camps across Kerala, where they have dispensed around 300 hearing aids.

❖ **Early Intervention and Therapy:**

- **Auditory Verbal Therapy (AVT):** Early intervention therapy for young children who are deaf or hard of hearing, helping them develop speech and language skills using hearing aids or cochlear implants.

Conclusion: Ms Padmapriya K concluded by emphasizing the critical role of AAC and other assistive devices in enhancing the quality of life for individuals with communication and

hearing impairments. She highlighted the ongoing efforts of NIPMR to provide accessible and affordable solutions and the importance of acceptance and early intervention for the effective use of these technologies.

3.0	<p>EXPERTS SESSION IMPROVING ACCESS TO ASSISTIVE TECHNOLOGY IN INDIA – WHO PERSPECTIVE SESSION BY DR B MOHAMMED ASHEEL, NATIONAL PROFESSIONAL OFFICER & COUNTRY FOCAL POINT FOR DISABILITIES, REHABILITATION AND ASSISTIVE TECHNOLOGY, WORLD HEALTH ORGANISATION (WHO)</p>
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Dr B Mohammed Asheel presented the WHO perspective on improving access to assistive technology, focusing on India and localizing insights for Kerala. His session highlighted the historical context, current challenges, and the need for systemic changes to improve access to assistive technology.

KEY POINTS:

❖ Historical Context and Technological Evolution:

- In 1921, Blackrock Special Hospital demonstrated artificial limbs, showcasing the technology available at that time.
- The problem is not the existence of technology but its accessibility to the public.
- Ed Roberts' advocacy led to the Architectural Barriers Act of 1968, emphasizing the need for accessible infrastructure like curb cuts.

❖ Technological Advancements:

- Technology has significantly improved, offering endless possibilities from basic mobility aids to high-end exoskeletons.
- Examples include bionic limbs and sophisticated wheelchairs used by prominent figures like Stephen Hawking.
- Assistive technology spans various life aspects, from adult diapers to advanced exoskeletons.

❖ Significance of Assistive Technology:

- Assistive technology is crucial for education, poverty alleviation, employment, inclusion, and social adaptation.
- Mobile phones are powerful assistive devices, with companies like Apple dedicating significant resources to accessibility features.

❖ **Market Analysis and Economic Impact:**

- WHO estimates that 2.5 billion people currently require assistive technology, projected to increase to 3.5 billion by 2050.
- The return on investment (ROI) for assistive technology is 1:9, demonstrating significant economic benefits.
- For example, the unmet need for hearing aids in India is 63.8%, translating to a market worth ₹8,473 crores.

❖ **Challenges in Accessing Assistive Technology:**

- Barriers include cost, lack of awareness, inadequate design, and insufficient standards.
- The availability of products does not guarantee accessibility; systemic mechanisms are needed to ensure these products reach the people who need them.

❖ **Universal Assistive Technology Coverage:**

- The ideal scenario involves covering all essential products, ensuring they are affordable and accessible to all.
- WHO supports initiatives like the Training in Assistive Products (TAP) to improve awareness and accessibility.

❖ **Role of Local Industries and Circular Economy:**

- Kerala's market benefits from a diverse range of small and medium-scale industries.
- Emphasizing the circular economy, products like wheelchairs should be recycled and reused to maximize resources.

❖ **Teamwork and Technological Integration:**

- The integration of technology, teamwork, and intentionality can lead to significant advancements.
- An example is the evolution of Formula 1 pit stops, where teamwork and technology reduced the pit stop time from 67 seconds in the 1950s to 1.6 seconds in recent years.

Conclusion: Dr B Mohammed Asheel concluded by emphasizing the importance of seeing assistive technology as essential public health goods rather than charity products. He highlighted the need for systemic changes to ensure universal accessibility and affordability, leveraging local industries, and fostering innovation through teamwork and technological integration.

3.0	<p>EXPERTS SESSION</p> <p>THE FUTURE OF ASSISTIVE TECHNOLOGY: TOP TEN CONSIDERATIONS</p> <p>SESSION BY DR SUJA K KUNNATH, EXECUTIVE DIRECTOR, NATIONAL INSTITUTE OF SPEECH & HEARING (NISH)</p>
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Dr Suja K Kunnath's session focused on the future of assistive technology (AT) and the critical considerations for its development and implementation. She emphasized the importance of user-centric design, the high failure rate in the acceptance of AT, and the need for policy-level interventions.

KEY POINTS:

- ❖ Integration of AT in Daily Life:
 - Assistive technology has become an integral part of our lives, like how dependent we are on mobile phones and the internet.
 - Dr Suja highlighted that some AT devices are seamlessly accepted, while others face high rejection rates.

- ❖ Acceptance Challenges:
 - There is an 80% failure rate in the acceptance of AT devices.
 - Reasons for this high failure rate include quality, user-centric design, and other factors.
 - Emphasis on starting the design process with the user's needs in mind to improve acceptance rates.

- ❖ User-Centric Design:
 - The importance of integrating user preferences from the beginning of the design process.

- Example given of how personalized solutions, like those preferred by an individual, are more likely to be accepted.

- ❖ Availability and Simple AT Examples:
 - Availability of AT is crucial for its success.
 - Closed captions were cited as a straightforward example of assistive technology that significantly benefits users.

- ❖ Empower 2024 as a Platform for promotion of Assistive Technology:
 - Empower 24 is highlighted as a significant platform for AT, bringing together industry, developers, academia, and users.
 - This event is a catalyst for collaboration and innovation in the AT sector.

- ❖ AT Centers Across the State:
 - Mention of various AT centers across Kerala, emphasizing the need for collaboration and information sharing among these centers.

- ❖ Population and Policy Considerations:
 - By 2030, 4 out of 10 people in Kerala will be over 60 years old, increasing the demand for assistive devices.
 - There is currently no specific AT policy in Kerala, highlighting the need for policy-level interventions to support the development and implementation of AT.

- ❖ Collaboration and Ecosystem Development:
 - Stress on the need for a collaborative approach involving developers, rehabilitation professionals, and end-users to create effective and user-friendly AT solutions.
 - KMTC's role in fostering such collaborations and advancing the AT sector.

- ❖ Empowering Innovation and Accessibility:
 - Dr Suja K Kunnath encouraged exploring and utilizing available resources for AT development, emphasizing that even small adaptations and customizations can make a significant impact.
 - She called for the development of an ecosystem that supports AT innovation and ensures accessibility.

Dr Suja K Kunnath concluded with a call to action for stakeholders to participate in the Empower 24 conference, collaborate, and contribute to the development of effective and user-friendly assistive technology solutions.

Dr Suja K Kunnath's session underscored the importance of user-centric design, the need for policy interventions, and the critical role of collaboration in advancing the field of assistive technology. She highlighted the current gaps and future opportunities, calling for collective efforts to create an inclusive and accessible environment for all.

4.0	EXPERTS SESSION ASSISTIVE TECHNOLOGY: PERSPECTIVES & FUTURE DIRECTION SESSION BY DR SINDHU VIJAYAKUMAR , EXECUTIVE DIRECTOR, FOUNDATION FOR INTERNATIONAL REHABILITATION RESEARCH AND EMPOWERMENT (FIRRE) & ASSOCIATE PROFESSOR, DEPARTMENT OF PHYSICAL MEDICINE & REHABILITATION (PMR), AMALA INSTITUTE OF MEDICAL SCIENCES
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Dr Sindhu Vijayakumar's session provided a comprehensive overview of the current state, challenges, and prospects of Assistive Technology (AT) in Kerala. Drawing from her extensive experience at NIPMR and her role at FIRRE, Dr Vijayakumar emphasized the critical need for user-centric design, better awareness, and stronger integration between various stakeholders. She highlighted the innovative projects and mentoring activities she has been involved in and stressed the importance of creating a sustainable and inclusive AT ecosystem. The session aimed to inspire collaboration and action towards empowering persons with disabilities through advanced and accessible assistive technologies.

KEY POINTS:

❖ Experience and Major Projects at NIPMR:

- Dr Sindhu Vijayakumar shared her journey and major projects she was involved in at NIPMR from August 2018 to March 2022.
- Significant projects include the Spinal Cord Injury Rehabilitation Unit, Wheeltrans, Instrumented Gait and Motion Analysis Lab, Virtual Reality Based Motor Rehabilitation Unit, and Centre for Mobility and Assistive Technology (CMAT).

❖ Certificate Course in Assistive Technology Solutions:

- Dr Sindhu Vijayakumar described her transformation from a learner to a facilitator and mentor in the Certificate Course in Assistive Technology Solutions, organized by NISH, NIPMR, and KDISC in 2019.
- This course helped her understand assistive technologies beyond physical/locomotor disabilities, including visual, speech, hearing, and intellectual disabilities.
- It also improved her ability to communicate effectively with engineers, developers, and manufacturers.

❖ **Mentoring Startups:**

- Dr Sindhu Vijayakumar has been mentoring many startups, such as Desintox Technologies, Genrobotics, Astrek Innovations, Cureous Labs, and Cre-Aid Labs.
- Mentoring is currently done pro bono, which she hopes to change, and she highlighted the challenges of adhering to timelines due to her clinical engagements.

❖ **Empowerment Activities:**

- As a co-founder of Foundation for International Rehabilitation Research and Empowerment (FIRRE), Dr Sindhu emphasized the organization's work in empowering persons with disabilities.
- FIRRE has four members who are Certified Assistive Technology Professionals, enhancing their ability to serve more individuals with appropriate devices.
- The NGO focuses on bridging the gap between government systems, NGOs, and private organizations to enhance awareness, increase independence, and empower persons with disabilities.

❖ **Present AT Scenario:**

- Dr Sindhu Vijayakumar discussed the current challenges in the assistive technology (AT) ecosystem, including a lack of awareness among potential users and government doctors.
- She highlighted the high rejection rate of assistive devices, often due to unrealistic expectations and a culture of dependence among persons with disabilities and their caregivers.
- The government sector's distribution of low-quality devices through camps and the private sector's high costs were noted as significant barriers.

❖ **PMR Assistive Technology Clinics:**

- Regular clinics are held every two weeks at Amala Institute of Medical Sciences to provide high-end assistive devices, such as prostheses, communication devices, and functional orthoses.
- Financial assistance is provided, but it is not free, to ensure users value the devices.

❖ **Future Directions:**

- Dr Sindhu Vijayakumar emphasized the need to discourage off-the-shelf purchases of assistive devices and to involve persons with disabilities from the start to reduce rejection rates.
- She advocated for a dedicated and strong system, similar to those in developed countries, with automatic referrals to rehab from acute care and a team of AT-trained professionals.
- Financial support should be provided to startups and persons with disabilities alike, with strong research and awareness initiatives.
- Integration of all sectors and leveraging KMTC and Kerala Startup Mission's efforts was highlighted as crucial for the future of assistive technology in Kerala.

❖ **Innovative Approaches and Collaborations:**

- Dr Sindhu Vijayakumar provided examples of innovative projects, such as NeoMotion transfer devices and clinical trials of body-powered exoskeletons for upper and lower limbs.
- She also discussed the importance of exports to the Middle East for financial sustainability and highlighted the need for financial support to startups and persons with disabilities to bridge gaps in the AT ecosystem.

5.0	<p>EXPERTS SESSION ATTVARAN - ACCELERATOR PROGRAM FOR ASSISTIVE TECHNOLOGY STARTUPS SESSION BY</p> <ul style="list-style-type: none">● MR ARVIND SURESH AMBALAPUZHA, STRATEGIC CONSULTANT, NATIONAL CENTRE FOR ASSISTIVE HEALTH TECHNOLOGY (NCAHT), NATIONAL INSTITUTE OF SPEECH & HEARING (NISH)● MR SHANTOSH CUMARASURIER, INNOVATION CONSULTANT, GLOBAL DISABILITY INNOVATION (GDI) HUB
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Mr Arvind Suresh Ambalapuzha and Mr Shantosh Cumarasurier presented an insightful session on ATTVARAN, an accelerator program aimed at fostering assistive technology startups. The session covered the origins, mission, and future plans of the program, emphasizing its global reach, collaborative approach, and focus on user-centric design.

KEY POINTS:

❖ Global Reach and Impact:

- The Global Disability Innovation (GDI) Hub operates in 41 countries, impacting 35 million people through a network of 100 partners.
- The initiative originated from the 2012 London Paralympics and has since focused on transformative outcomes in assistive technology.
- GDI Hub, the entity behind ATTVARAN, combines academic research and community interest efforts to address global challenges in disability innovation.

❖ Mission and Funding:

- ATTVARAN aims to convert consumers into customers through a consumer-centric design approach.
- The program has secured a £50 million fund dedicated to the growth of assistive technology startups, known as the Assistive Tech Impact Fund, supporting ventures primarily in Africa and now extending to other regions.

❖ Innovative Approach:

- GDI Hub emphasizes doing things differently, focusing on transformative outcomes by leveraging new technologies and ecosystems, supporting and scaling innovations, shaping markets, pioneering research, sharing knowledge, and taking risks.

❖ Upcoming Program for Startups:

- A new program for startups is scheduled to begin on July 1, 2024, spanning six months. The first three months will involve intensive engagement, followed by three months of distance mentoring.
- The program is a collaboration with GMR airports, IIIT Bangalore, IIT Madras, and other key institutions, aiming to provide a robust support system for startups.

❖ **Collaborative Approach:**

- The program emphasizes understanding the consumer to develop the right products that resonate with people and foster strong brand loyalty.
- Startups are supported by a business mentor and a person with a disability to ensure the products meet user needs and are accessible and impactful.

❖ **Design and Development:**

- The focus is on creating products that are financially sustainable and can scale to serve more people.
- Startups are encouraged to engage in field studies and tests to refine their products and ensure they meet the needs of the target audience.

❖ **Support and Mentorship:**

- The program provides intensive engagement, mentorship, and support, including lectures, workshops, research assignments, and mentoring sessions.
- Industry leaders, such as the former managing director of Deutsche Bank, are involved in mentoring the startups.

❖ **GMR Airports Collaboration:**

- Collaboration with GMR airports aims to make airports accessible and serves as a platform for startups to showcase their products.
- The goal is to secure purchase orders for startups, helping them scale their products.

❖ **Funding Model:**

- While the program currently covers operational expenses, it is working on establishing the Assistive Technology Growth Fund to invest directly in startups.
- Startups do not receive direct funding from the program but benefit from the resources and support provided.

❖ **Future Plans:**

- The program aims to expand its reach and impact by working with various partners and stakeholders.
- The long-term vision includes establishing an ecosystem that supports the growth and development of assistive technology startups.

The session by Mr Arvind Suresh Ambalapuzha and Mr Shantosh Kumarasurier highlighted the significant role of ATTVARAN in fostering innovation and growth in the assistive technology sector. By focusing on user-centric design, collaboration, and sustainable development, the program aims to transform the landscape of assistive technology and improve the lives of millions globally. The detailed insights from the presentation deck further enrich the understanding of ATTVARAN's mission, approach, and future plans.

6.0	<p>EXPERTS PANEL DISCUSSION MANUFACTURING OF ASSISTIVE TECHNOLOGY – CHALLENGES AND OPPORTUNITIES MODERATED BY MR ROHIT PHILIP, SENIOR PROGRAM CONSULTANT, KERALA MEDICAL TECHNOLOGY CONSORTIUM (KMTC) EXPERT PANEL:</p> <ul style="list-style-type: none"> • DR B MOHAMMED ASHEEL, NATIONAL PROFESSIONAL OFFICER & COUNTRY FOCAL POINT FOR DISABILITIES, REHABILITATION AND ASSISTIVE TECHNOLOGY, WORLD HEALTH ORGANISATION (WHO) • MR MOIDEENKUTTY K, FORMER MANAGING DIRECTOR, KERALA STATE DIFFERENTLY ABLED WELFARE CORPORATION LTD • MR MAHADEVAN R IYER, MANAGING DIRECTOR, SAI REHAB • MR K S MOHAMMED, MANAGING DIRECTOR, GLORIFIED ORTHOTECH
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An interactive session with expert speakers was conducted to discuss the challenges and opportunities in the manufacturing of Assistive Technology (AT). The discussion aimed to answer pertinent queries from delegates and participants.

The interactive session focused on the manufacturing of Assistive Technology (AT) in Kerala, highlighting both challenges and opportunities. The expert panel comprised Dr B Mohammed Asheel, Mr Moideenkutty K, Mr Mahadevan R Iyer, and Mr K S Mohammed, who shared their insights and experiences.

Introduction

Mr Rohit Philip welcomed the panellists and provided an overview of the importance of AT manufacturing. He emphasized the need for a comprehensive discussion on the current landscape, challenges, opportunities, and policy recommendations to boost AT manufacturing in Kerala.

Current Landscape of Assistive Technology Manufacturing

Dr B Mohammed Asheel provided a global perspective on AT manufacturing, highlighting international trends and the role of WHO in prioritizing critical devices. He emphasized the wide range of products and the significant gap from prototype to market reach. He mentioned the collaboration between WHO, the Commerce Department, and NiTI Aayog to address this gap. He also shared a case study from the COVID-19 pandemic, where small-scale industries and community efforts led to mass production of masks. Dr Asheel suggested a similar approach for manufacturing affordable adult diapers by leveraging the potential of small-scale industries (SSI) and Kudumbasree units.

Mr Moideenkutty K discussed the state of AT manufacturing in Kerala, noting the presence of manufacturing units in medical colleges in Trivandrum, Kottayam, and Kozhikode. He pointed out that despite having good facilities, such as in Kottayam, there is a lack of qualified personnel and resources. He emphasized the need for better resource allocation and qualified staff to improve AT manufacturing in the state.

Challenges in Assistive Technology Manufacturing

Mr Mahadevan R Iyer highlighted several technical and logistical challenges, including supply chain issues and regulatory barriers. He emphasized the importance of focusing on solving problems rather than just creating products, highlighting critical AT needs in daily living activities such as toilet use, eating, and movement. He criticized ALIMCO's approach and suggested that marketing efforts should target a larger portion of the population, noting that the B2C market could be more significant than B2B. Mr Iyer also mentioned the high cost of moulds and the competitive challenge posed by Chinese products.

Mr K S Mohammed shared his journey in AT manufacturing, starting with the idea in 1987 and beginning production in 2000. He focused on manufacturing hospital orthopaedic equipment and the development of readymade Taylor braces. He highlighted the major problem of sourcing raw materials and the challenge of technician availability. Mr Mohammed mentioned the production of 2,000 different products and successful exports, such as walkers to Oman and MCR chappals to the Middle East.

Opportunities and Advantages in Kerala

The panellists discussed the unique advantages Kerala offers for AT manufacturing, including a skilled workforce, strong research institutions, and government support. They emphasized leveraging Kerala's strengths in education, healthcare, and social inclusion to boost AT manufacturing. The panellists shared successful case studies and examples from Kerala, highlighting the potential for innovation and growth in the sector.

Policy Recommendations and Support from Government

Dr B Mohammed Asheel provided recommendations for policy changes at the state and national levels, emphasizing the importance of aligning with global standards and practices. He suggested specific measures to support AT manufacturing, including financial incentives, subsidies, and grants.

Mr Moideenkutty K suggested policy measures that the Government of Kerala could implement to support AT manufacturing. He emphasized the need for better resource allocation and infrastructure development to foster innovation and growth.

Mr Mahadevan R Iyer and Mr K S Mohammed recommended investing in research and development (R&D) and fostering public-private partnerships to drive innovation in the sector. They highlighted the need for a collaborative approach to address the challenges and seize the opportunities in AT manufacturing.

Interactive Q&A Session

The session concluded with an interactive Q&A, where audience members asked questions and engaged in discussions with the panellists. The panellists emphasized the need for practical steps and collaborative efforts to overcome challenges and leverage the opportunities in AT manufacturing.

Concluding Remarks

Mr Rohit Philip summarized the key points discussed, highlighting the collective efforts needed to advance AT manufacturing in Kerala. He thanked the panellists and the audience for their participation, emphasizing the importance of continued collaboration and innovation to improve the sector.

The panel discussion provided a comprehensive overview of the current state, challenges, and opportunities in AT manufacturing in Kerala, highlighting the need for collaboration, resource allocation, and innovative approaches to address the gaps in the sector.

7.0	<p>STARTUPS PITCH SESSION</p> <p>TRANSFORMING IDEAS INTO INNOVATIONS: AT STARTUP PITCH SHOWCASE</p> <p>SESSION BY SELECT STARTUPS SHOWCASING THEIR INNOVATIVE ASSISTIVE TECHNOLOGY PRODUCTS & SOLUTIONS</p>
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The session featured novel startups presenting their innovative solutions aimed at enhancing the lives of persons with disabilities. This showcase highlighted the innovative approaches and products developed by various startups, emphasizing the transformative impact of assistive technology. The following startups presented their unique solutions:

7.1	<p>PRESENTATION BY MR ASISH MOHANDAS, FOUNDER & CEO, CUREOUS LABS</p>
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Cureous Labs has developed an innovative Intelligent Bed System designed specifically for stroke patients and hospital settings. This system, named "Eternal," is India's first intelligent automatic patient repositioning solution. It aims to address the critical needs of patients who require frequent repositioning to prevent pressure injuries (bedsores) and reduce the burden on caregivers.

The Eternal series offers automated patient turning and repositioning, which significantly minimizes the manual efforts required by caregivers. This system is designed to perform effortless and painless turning for patients, ensuring proper pressure distribution to reduce the risk of bedsores. It complies with guidelines from the National Pressure Injury Advisory Panel (NPIAP), providing a recommended 30-degree angle for effective pressure relief. The intelligent bed system also helps in adjusting patient positioning both horizontally and vertically, making it easier to maintain comfort and safety.

By incorporating advanced technology, Eternal not only enhances patient care but also improves the overall efficiency of healthcare facilities. This solution is already trusted and used by leading healthcare institutions in India, indicating its effectiveness and reliability in real-world settings. The integration of such intelligent systems can significantly improve the quality of life for patients and ease the workload for caregivers, marking a significant advancement in assistive healthcare technology.

7.2

PRESENTATION BY **MR JITHIN VIDYA AJITH**, CO-FOUNDER & COO, ASTREK INNOVATIONS

Astrek Innovations presented their pioneering work on wearable robotics designed to enhance lower limb rehabilitation, focusing on their flagship product, Unik Exo. This innovative exoskeleton aims to revolutionize the rehabilitation process for stroke patients and individuals with spinal cord injuries by providing a portable and modular design that ensures comfort and ease of use. The device leverages robotics and AI to transform any space into a portable gait lab, facilitating real-time progress monitoring and control for both therapists and patients.

Key features of Unik Exo include lower manual effort, higher accuracy, and the ability to perform range of motion exercises with adjustable speeds and angles. This system is designed to increase the patient handling capacity of physiotherapists, reduce physical strain, and improve the efficacy of treatment protocols. For patients, the robotic precision and independence fostered by Unik Exo significantly enhance the chances of recovery and improve the overall quality of treatment, reducing both physical and mental fatigue.

Astrek Innovations has garnered significant recognition for their work, including winning the Microprocessor Challenge, the SEED G22 competition, and the OIST Innovation Challenge. With patents granted and pending, Astrek is well-positioned to continue advancing their technology and making substantial contributions to the field of assistive technology. Their vision extends beyond rehabilitation, aiming to integrate exoskeletons into everyday life, thereby removing barriers and enhancing the quality of life for individuals with disabilities.

7.3

PRESENTATION BY **MR SATHYANARAYANAN A R**, FOUNDER & CEO, EMBRIGHT INFOTECH

Embright Infotech is an innovative technology company specializing in creating assistive technology solutions aimed at improving the quality of life for individuals with disabilities. One of their flagship products, Auticare, is an XR-AI-based assistive technology platform designed to support inclusive learning, particularly for individuals with Autism Spectrum Disorder (ASD) and those requiring special education.

Auticare integrates cutting-edge technologies such as Augmented Reality (AR), Virtual Reality (VR), and Artificial Intelligence (AI) to deliver effective Applied Behaviour Analysis (ABA)

therapy. This platform addresses several key challenges in the field, including the scarcity of qualified therapists, the need for improved therapy interventions, and the importance of performance data for understanding behavioural patterns. By offering an engaging, interactive, and immersive approach, Auticare aims to empower individuals with special needs to achieve greater independence and enhance their learning experiences.

In addition to providing high-quality therapeutic interventions, Embright Infotech’s platform facilitates early identification of developmental delays, promotes inclusion in various settings, and supports holistic skill development with parental involvement. Their efforts in business development have led to significant achievements, including closing substantial revenue deals, forming key partnerships, and receiving mentorship and funding through programs like the Meta – CIE Accelerator Program.

7.4	PRESENTATION BY DR ASHIQUE HYDER ALI , FOUNDER & CEO, TRAVANCORE REHAB
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Travancore Rehab, based in Alleppey, Kerala, is a leading provider of physiotherapy and rehabilitation services. Their mission is to deliver world-class rehabilitation care, adhering to international standards and protocols. Travancore Rehab has expanded rapidly since its inception, growing from a small facility with minimal staff to a comprehensive service provider with over 300 professionals.

Their services encompass a wide range of therapeutic and support areas, including physiotherapy, speech therapy, occupational therapy, psychological counselling, and diet consultations. They also specialize in the design and production of custom-made assistive devices, mobility aids, wheelchairs, and ergonomic furniture tailored to the needs of individuals with disabilities.

Travancore Rehab emphasizes a patient-centric approach, ensuring personalized care and effective clinical outcomes. Their vision is to become a globally recognized, credible, and comprehensive rehabilitation solution provider. They have successfully implemented scalable and sustainable business models, striving to improve the quality of life for their patients by creating innovative and customized rehabilitation solutions.

8.0	<p>KMTC SESSION KERALA: GLOBAL HUB FOR ASSISTIVE TECHNOLOGY?! SESSION BY MR ROHIT PHILIP, SENIOR PROGRAM CONSULTANT, KERALA MEDICAL TECHNOLOGY CONSORTIUM (KMTC)</p>
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In this session, Mr Rohit Philip, Senior Program Consultant at Kerala Medical Technology Consortium (KMTC), provided a detailed overview of KMTC's vision and mission. He discussed the expansive Kerala MedTech ecosystem, highlighting its size, revenue, and key sub-segments. Mr Rohit Philip emphasized the significant focus KMTC places on Assistive Technology (AT) and shared valuable insights gathered from their ongoing initiatives.

Key Points:

1. KMTC Vision and Mission:

- KMTC aims to position Kerala as a leading hub for medical technology innovation, research, and manufacturing.
- The consortium focuses on fostering collaboration among various stakeholders, including researchers, innovators, investors, NGOs, industry representatives, and policymakers.

2. Kerala MedTech Ecosystem:

- Kerala's MedTech ecosystem is robust, comprising numerous startups and established companies generating significant revenue.
- The ecosystem is divided into various sub-segments, each contributing to the overall growth and innovation in the state.

3. Focus on Assistive Technology:

- Assistive Technology is a key area of focus for KMTC, with efforts directed towards enhancing accessibility, affordability, and quality of life for individuals with disabilities.
- KMTC is committed to advancing AT through research, development, and the implementation of innovative solutions.

4. Insights and Potential:

- Mr Rohit Philip shared insights on the potential for Kerala to evolve into a top hub for AT device innovation.

- He highlighted the state's unique advantages, such as a skilled workforce, advanced research institutions, and strong government support.
- The session emphasized the need for continued collaboration and investment to leverage Kerala's strengths in education, healthcare, and social inclusion.

5. **Support and Help from KMTC:**

- KMTC offers extensive support for potential projects in Medical Devices and Assistive Technology:
 - **Funding and Grants - Facilitation:** KMTC provides support to discover, apply for and access various funding opportunities and grants to support research, development, and commercialization of innovative medical devices and AT solutions.
 - **Research and Development Support:** KMTC facilitates partnerships with leading research institutions, providing access to state-of-the-art facilities and expertise.
 - **Regulatory Guidance:** KMTC offers guidance on regulatory compliance, helping startups and innovators navigate the complex landscape of medical device regulations.
 - **Market Access:** KMTC assists in market entry strategies, connecting innovators with potential customers, distributors, and partners both within India and globally.
 - **Mentorship and Guidance:** KMTC provides mentorship programs, training workshops, and resources to help innovators develop the necessary skills and knowledge to succeed in the MedTech sector.
 - **Public-Private Partnerships:** The consortium fosters public-private partnerships to drive innovation, attract investments, and promote the adoption of new technologies.

The session underscored the immense potential for Kerala to lead in the Assistive Technology sector. By fostering innovation, research, and manufacturing, KMTC aims to make Kerala a global hub for AT, ultimately improving the quality of life for individuals with disabilities. KMTC's comprehensive support system for potential projects in Medical Devices and AT ensures that innovators have the resources and guidance needed to succeed.

9.0	<p>WRAP-UP SESSION KEY TAKEAWAYS OF THE DAY SESSION BY MR C PADMAKUMAR, SPECIAL OFFICER, KERALA MEDICAL TECHNOLOGY CONSORTIUM (KMTC)</p>
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Mr C Padmakumar, Special Officer at the Kerala Medical Technology Consortium (KMTC), concluded the day's proceedings by highlighting three main points. First, he emphasized the significant learning and insights gained about the sector, particularly assistive technology (AT). The discussions underscored that despite some progress in AT within the state, there are still key issues, notably the lack of raw materials, qualified personnel, and awareness about regulatory standards.

Second, Mr Padmakumar pointed out the importance of adhering to minimum standards for all medical devices and assistive technologies. He stressed that quality should not be seen as a luxurious addition but as a fundamental necessity. He referenced the high standards maintained by Kerala-based companies that succeed in the export market as testament to the importance of maintaining quality.

Finally, he highlighted the role of KMTC in supporting potential projects in medical devices and assistive technology. KMTC aims to help by leveraging its industry experience to ensure products meet international standards and by facilitating connections with technology partners, marketing channels, and export markets. He also emphasized the need for greater visibility and government support for the sector, urging collective efforts to advocate for higher budget allocations and policy support for assistive technology.

4. INSIGHTS & TAKEAWAYS

The 9th KMTC Stakeholders Connect Meet, held at the National Institute of Physical Medicine and Rehabilitation (NIPMR) on May 25, 2024, brought together experts, innovators, and stakeholders to explore the challenges and opportunities in the field of Assistive Technology (AT). This comprehensive event featured insightful presentations, panel discussions, and startup pitches, highlighting Kerala's potential to become a global hub for AT innovation, research, and manufacturing. Key takeaways from the event underscore the importance of policy development, market potential, and the need for enhanced awareness and access to AT

solutions. This summary encapsulates the rich discussions and strategic insights shared throughout the day, offering a roadmap for advancing the AT sector in Kerala.

Policy and Market Potential

- **Assistive Technology Policy:** Kerala is in the process of drafting a comprehensive policy for Assistive Technology (AT). This policy aims to address the needs and rights of individuals with disabilities, providing a structured framework for the development and distribution of AT products.
- **Immense Market Opportunity:** The AT sector presents a substantial market opportunity, with 21 essential products alone accounting for an estimated INR 82,000 crore. This indicates a significant potential for economic growth and societal impact through AT development.
- **Interest from Other States:** Besides Kerala, Tamil Nadu and Delhi have also shown considerable interest in advancing Assistive Technology, highlighting a broader regional commitment to improving accessibility and inclusion.

Societal Impact and Inclusivity

- **Disability Prevalence:** It is noted that 11% of a person's life is likely to be spent with some form of disability. This underscores the critical need for robust AT solutions to improve quality of life.
- **Untapped Market:** The AT market remains largely untapped and unaddressed, with limited interest from mainstream businesses and investors. This presents an opportunity for pioneering ventures to make significant inroads.
- **Distributed Manufacturing Potential:** AT products offer considerable potential for distributed manufacturing, particularly involving community organizations like Kudumbasree, which can help scale production and enhance local employment.

Current Efforts and Challenges in Kerala

- **Progress in AT Manufacturing:** Despite earnest efforts in the past 5-6 years, Kerala has not made significant progress in AT manufacturing. The state has a Disability Policy, which should serve as a reference in developing the new AT policy.

- **Accessible Kerala Initiative:** There is a vision to transform Kerala into an inclusive society, making it an "Accessible Kerala." This includes leveraging the principles of the 5As and 1Q: Availability, Accessibility, Affordability, Adaptability, Acceptability, and Quality.
- **Institutional Expertise:** Institutions like NIPMR and NISH bring valuable experience and expertise in Disability and Assistive Technology, which are critical resources for the state.

Challenges in Adoption and Manufacturing

- **Main Challenges:** The primary challenges in AT adoption include:
 - Technical expertise
 - Awareness
 - Establishing evidence
 - Skilled manpower
 - Outreach and follow-up
 - Acceptance by parents and family
 - Training and maintenance/service
- **Access Over Technology:** The main barrier to AT adoption is not the technology itself but access to these technologies. Improving access can significantly enhance adoption rates.
- **Smartphones as AT Devices:** The mobile smartphone is highlighted as the most powerful AT device due to its widespread availability and multifunctional capabilities.
- **Return on Investment:** Investment in AT has a substantial return, estimated at 1:9, indicating high economic and social benefits.

Strategic Initiatives and Future Directions

- **WHO Publications and Empower 2024:** The WHO provides a comprehensive set of publications on AT, and events like Empower 2024 serve as significant platforms for advancing AT discussions and collaborations.
- **Aging Population:** By 2030, 40% of India's 60+ population will reside in Kerala, underscoring the urgent need for effective AT solutions to support this demographic.
- **Creation of Demand:** Creating demand for AT products is crucial for their acceptance. Public awareness campaigns and demonstration projects can play a vital role in this.

- **Government Doctors and AT Awareness:** Many government doctors are not up-to-date with the latest advancements in AT and rehabilitation. Continuous training and education programs are essential.
- **Artificial Limb Centres:** Each government medical college has an Artificial Limb Centre, with fully functional units in Kozhikode, Kottayam, and Trivandrum.

AT Manufacturing and Market Dynamics

- **Attvaran Program:** The AT Startup Acceleration program, Attvaran, is set to start in July 2024, aiming to nurture and scale innovative AT startups.
- **Prototype to Market Gap:** A significant gap exists between the prototype development and market readiness stages in AT manufacturing.
- **Focus on Problems, Not Products:** There is an excessive focus on the products rather than addressing the underlying problems they aim to solve. A problem-centric approach is essential for effective AT solutions.
- **High Marketing Costs and Raw Material Access:** High marketing costs and challenges in accessing specialized raw materials like quality Velcro pose significant barriers for AT manufacturing, especially for SMEs.

5. ATTENDANCE & PARTICIPATION

A total of 63 representatives participated in the SCM, with representation from all stakeholder groups. The Meet was successful in getting participants to interact with each other and discuss critical issues on the theme / topic. The List of Resource Persons, Speakers and Participants are attached in Annexure.

6. MEET FEEDBACK FROM DELEGATES

Feedback was collected from participants via an online form, towards the end of the Meet with a few questions for quantitative measure of the relevance, quality and the overall event and some for qualitative feedback and suggestions.

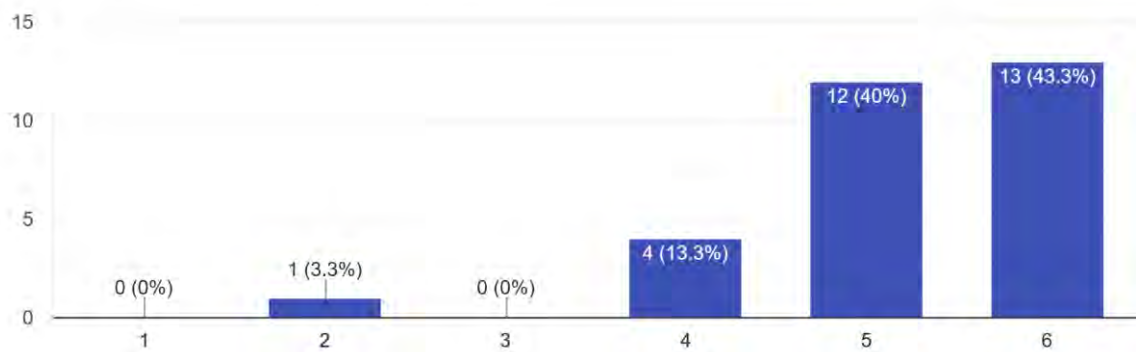
OBJECTIVE FEEDBACK

Here are the graph visualisations for the quantitative feedback collected from participants. Out of a total of 57 participants, 29 individuals provided responses to the feedback survey.

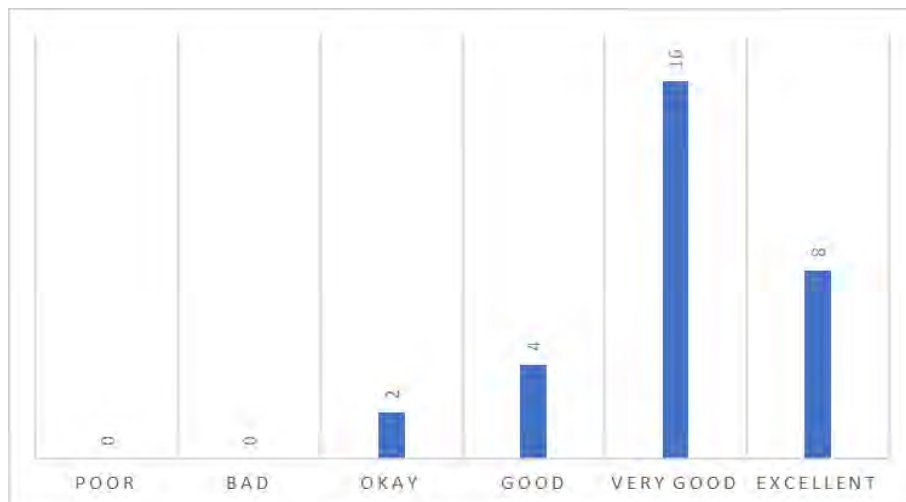
1. The Relevance of the Meet for the Participant

Would you say that this event was relevant to you?

30 responses



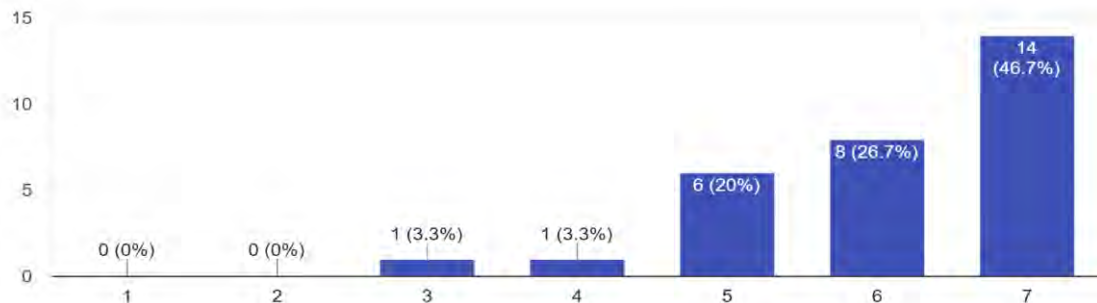
2. The Quality of Speakers and Peers, and Theme / Content in the Meet



3. Overall Rating for the Meet by the Participant

Overall, how would you rate the event, including the Program, Speakers, Sessions, Venue and Arrangements, Participants?

30 responses



SUBJECTIVE FEEDBACK

After analysing the qualitative feedback from the participants, the major areas and sentiments expressed can be summarised as follows, prioritising the most repeated ones:

Inclusion and Representation:

- The duration of individual sessions required more time, prompting a suggestion for a two-day event with additional networking opportunities.
- Conducting the event with stalls and exhibitions, involving investors, and organising follow-up events would also be beneficial.
- More demonstrations with devices brought by concerned professionals for hands-on experience.

Suggestions for Future Events:

- More focus on action-oriented approaches in panel discussions.
- Including more assistive device classes and creative art sessions inspired by nature and inclusive design.
- Additional opportunities for networking with stakeholders and learning about participating companies, their early stages, and building traction.
- Discussion on setting up a core group with an interest in Assistive Technology (AT).

7. ANNEXURE

7.1 PROGRAM AGENDA



9TH KMTc STAKEHOLDERS CONNECT MEET – MAY 2024

A unique interactive event that brings together all the Stakeholders in the Medical Technology / Medical Devices Space, including the industry; Research Institutions and Organisations; Healthcare Professionals, Healthcare Providers and Institutions; Entrepreneurs and Startups; Incubation & Acceleration Agencies; Universities & Colleges and the Government to promote collaboration, research, development and innovation in Medical Devices and Technology.

PROGRAM AGENDA

DATE	SATURDAY 25TH MAY 2024 9:30 AM – 4:30 PM
VENUE	AUDITORIUM, 3RD FLOOR. NATIONAL INSTITUTE OF PHYSICAL MEDICINE AND REHABILITATION (NIPMR), KALLETUMKARA, THRISSUR, KERALA (ON GOOGLE MAPS)

THEME	INNOVATING TOGETHER: ADVANCING ASSISTIVE TECHNOLOGY FOR ALL
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TIME		PROGRAM / ACTIVITY
1.	9:00 – 9:30 AM	ARRIVAL OF PARTICIPANTS & REGISTRATION

TIME		PROGRAM / ACTIVITY
2	9:30 – 10:15 AM [45 MINS]	<p>INAUGURAL CEREMONY</p> <ul style="list-style-type: none"> • WELCOME ADDRESS – MR CHANDRABABU C, EXECUTIVE DIRECTOR, NATIONAL INSTITUTE OF PHYSICAL MEDICINE AND REHABILITATION (NIPMR) • OPENING ADDRESS – MR C PADMAKUMAR, SPECIAL OFFICER, KERALA MEDICAL TECHNOLOGY CONSORTIUM (KMTC) • INAUGURAL ADDRESS – DR R BINDU, HON’BLE MINISTER FOR HIGHER EDUCATION AND SOCIAL JUSTICE, GOVERNMENT OF KERALA • KEYNOTE ADDRESS – DR B MOHAMMED ASHEEL, NATIONAL PROFESSIONAL OFFICER & COUNTRY FOCAL POINT FOR DISABILITIES, REHABILITATION AND ASSISTIVE TECHNOLOGY, WORLD HEALTH ORGANISATION (WHO) • SPECIAL ADDRESS – DR SUJA K KUNNATH, EXECUTIVE DIRECTOR, NATIONAL INSTITUTE OF SPEECH & HEARING (NISH) • SPECIAL ADDRESS – MR MOIDEENKUTTY K, FORMER MANAGING DIRECTOR, KERALA STATE DIFFERENTLY ABLED WELFARE CORPORATION • VOTE OF THANKS – MR REJEESH G R, GENERAL MANAGER (MARKETING), KERALA MEDICAL TECHNOLOGY CONSORTIUM (KMTC)
3	10:15 – 10:45 AM [30 MINS]	<p>INITIATION ON UNIVERSALISATION OF ASSISTIVE DEVICES</p> <p>SESSION BY EXPERTS FROM NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)</p> <ul style="list-style-type: none"> • MS VIDHUPRIYA K K, ASSOCIATE PROFESSOR, BACHELOR IN PROSTHETICS & ORTHOTICS (BPO) PROGRAMME • MR ABIRAM U, ASSISTANT PROFESSOR GRADE II, BACHELOR IN OCCUPATIONAL THERAPY (BOT) PROGRAMME • MS PADMAPRIYA K, HEAD, DEPARTMENT OF AUDIOLOGY & SPEECH LANGUAGE PATHOLOGY
4	10:45 – 11:00 AM [15 MINS]	NETWORKING TEA & REFRESHMENTS BREAK
5	11:00 - 11:15 AM [15 MINS]	<p>IMPROVING ACCESS TO ASSISTIVE TECHNOLOGY IN INDIA – WHO PERSPECTIVE</p> <p>SESSION BY DR B MOHAMMED ASHEEL, NATIONAL PROFESSIONAL OFFICER & COUNTRY FOCAL POINT FOR DISABILITIES, REHABILITATION AND ASSISTIVE TECHNOLOGY, WORLD HEALTH ORGANISATION (WHO)</p>
6	11:15 - 11:35 AM [20 MINS]	<p>THE FUTURE OF ASSISTIVE TECHNOLOGY: TOP TEN CONSIDERATIONS</p> <p>SESSION BY DR SUJA K KUNNATH, EXECUTIVE DIRECTOR, NATIONAL INSTITUTE OF SPEECH & HEARING (NISH)</p>

TIME		PROGRAM / ACTIVITY
7	11:35 - 11:50 AM [15 MINS]	<p>ASSISTIVE TECHNOLOGY: PERSPECTIVES & FUTURE DIRECTION</p> <p>SESSION BY DR SINDHU VIJAYAKUMAR, EXECUTIVE DIRECTOR, FOUNDATION FOR INTERNATIONAL REHABILITATION RESEARCH AND EMPOWERMENT (FIRRE), A NATIONAL LEVEL NGO & ASSOCIATE PROFESSOR, DEPARTMENT OF PHYSICAL MEDICINE & REHABILITATION (PMR), AMALA INSTITUTE OF MEDICAL SCIENCES, THRISSUR</p>
8	11:50 - 12:00 PM [10 MINS]	<p>ATTVARAN - ACCELERATOR PROGRAM FOR ASSISTIVE TECHNOLOGY STARTUPS</p> <p>SESSION BY</p> <ul style="list-style-type: none"> • MR ARVIND SURESH AMBALAPUZHA, STRATEGIC CONSULTANT, NATIONAL CENTRE FOR ASSISTIVE HEALTH TECHNOLOGY (NCAHT), NATIONAL INSTITUTE OF SPEECH & HEARING (NISH) • MR SHANTOSH CUMARASURIER, INNOVATION CONSULTANT, GLOBAL DISABILITY INNOVATION (GDI) HUB, UNIVERSITY COLLEGE LONDON (UCL)
9	12:00 - 2:00 PM [90 MINS]	<p>NIPMR FACILITY VISIT</p> <p>RARRC- SCHOOL FOR CHILDREN WITH AUTISM, CPRRC, HYDROTHERAPY, VIRTUAL REALITY UNIT, SPINAL CORD INJURY UNIT, GAIT & MOTION ANALYSIS LAB, SENSORY PARK, SENSORY GARDEN, PHYSIOTHERAPY, EYE CARE DENTAL CARE, AUDIOLOGY & SPEECH LANGUAGE PATHOLOGY, OT DEPARTMENT, CENTRE FOR MOBILITY AND ASSISTIVE TECHNOLOGY (CMAT)</p>
10	2:00 – 2:30 PM [30 MINS]	<p>NETWORKING LUNCH BREAK</p>
12	2:30 – 3:20 PM [50 MINS]	<p>EXPERT PANEL DISCUSSION – MANUFACTURING OF ASSISTIVE TECHNOLOGY: CHALLENGES AND OPPORTUNITIES</p> <p>INTERACTIVE SESSION WITH EXPERT SPEAKERS – ALSO ANSWERING QUERIES FROM DELEGATES / PARTICIPANTS</p> <p>MODERATED BY MR ROHIT PHILIP, SENIOR PROGRAM CONSULTANT, KERALA MEDICAL TECHNOLOGY CONSORTIUM (KMTC)</p> <ul style="list-style-type: none"> • DR B MOHAMMED ASHEEL, NATIONAL PROFESSIONAL OFFICER & COUNTRY FOCAL POINT FOR DISABILITIES, REHABILITATION AND ASSISTIVE TECHNOLOGY, WORLD HEALTH ORGANISATION (WHO) • MR MOIDEENKUTTY K, FORMER MANAGING DIRECTOR, KERALA STATE DIFFERENTLY ABLED WELFARE CORPORATION LTD • MR MAHADEVAN R IYER, MANAGING DIRECTOR, SAI REHAB • MR K S MOHAMMED, MANAGING DIRECTOR, GLORIFIED ORTHOTECH

TIME		PROGRAM / ACTIVITY
13	3:20 – 3:50 PM [30 MINS]	<p>TRANSFORMING IDEAS INTO INNOVATIONS: AT STARTUP PITCH SHOWCASE</p> <p>PITCH BY STARTUPS (5 MINS EACH)</p> <ul style="list-style-type: none"> ● MR ASISH MOHANDAS, FOUNDER & CEO, CUREOUS LABS ● MR JITHIN VIDYA AJITH, COO & CO-FOUNDER, ASTREK INNOVATIONS ● MR SATHYANARAYANAN A R, FOUNDER & CEO, EMBRIGHT INFOTECH ● DR ASHIQUE HYDER ALI, CEO & FOUNDER, TRAVANCORE REHAB
14	3:50 PM - 4:05 PM [15 MINS]	<p>KERALA: GLOBAL HUB FOR ASSISTIVE TECHNOLOGY?!</p> <p>SESSION BY KMTC</p> <ul style="list-style-type: none"> ● MR ROHIT PHILIP, SENIOR PROGRAM CONSULTANT, KERALA MEDICAL TECHNOLOGY CONSORTIUM (KMTC)
15	4:05 – 4:15 PM [10 MINS]	PARTICIPANTS FEEDBACK COLLECTION – THROUGH ONLINE FORM
16	4:15 – 4:25 PM [10 MINS]	<p>WRAPPING UP THE MEET</p> <ul style="list-style-type: none"> ● KEY TAKEAWAYS OF THE DAY – MR C PADMAKUMAR, SPECIAL OFFICER, KERALA MEDICAL TECHNOLOGY CONSORTIUM (KMTC)
17	4:25 PM ONWARDS	NETWORKING TEA & REFRESHMENTS

7.2 LIST OF PARTICIPANTS

Speakers and Resource Persons:

Sl. No.	Name	Designation	Institution
1	MS VIDHUPRIYA K K	ASSOCIATE PROFESSOR, BACHELOR IN PROSTHETICS & ORTHOTICS (BPO) PROGRAMME	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
2	MR ABIRAM U	ASSISTANT PROFESSOR GRADE II, BACHELOR IN OCCUPATIONAL THERAPY (BOT) PROGRAMME	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
3	MS PADMAPRIYA K	HEAD, DEPARTMENT OF AUDIOLOGY & SPEECH LANGUAGE PATHOLOGY	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
4	DR B MOHAMMED ASHEEL	NATIONAL PROFESSIONAL OFFICER & COUNTRY FOCAL POINT FOR DISABILITIES, REHABILITATION AND ASSISTIVE TECHNOLOGY	WORLD HEALTH ORGANISATION (WHO)
5	DR SUJA K KUNNATH	EXECUTIVE DIRECTOR	NATIONAL INSTITUTE OF SPEECH & HEARING (NISH)
6	DR SINDHU VIJAYAKUMAR	EXECUTIVE DIRECTOR, A NATIONAL LEVEL NGO & ASSOCIATE PROFESSOR	FOUNDATION FOR INTERNATIONAL REHABILITATION RESEARCH AND EMPOWERMENT (FIRRE), DEPARTMENT OF PHYSICAL MEDICINE & REHABILITATION (PMR), AMALA INSTITUTE OF MEDICAL SCIENCES, THRISSUR
7	MR ARVIND SURESH AMBALAPUZHA	STRATEGIC CONSULTANT	NATIONAL CENTRE FOR ASSISTIVE HEALTH TECHNOLOGY (NCAHT), NATIONAL INSTITUTE OF SPEECH & HEARING (NISH)
8	MR SHANTOSH CUMARASURIER	INNOVATION CONSULTANT	GLOBAL DISABILITY INNOVATION (GDI) HUB, UNIVERSITY COLLEGE LONDON (UCL)
9	MR MOIDEENKUTTY K	FORMER MANAGING DIRECTOR	KERALA STATE DIFFERENTLY ABLED WELFARE CORPORATION LTD
10	MR MAHADEVAN R IYER	MANAGING DIRECTOR	SAI REHAB
11	MR K S MOHAMMED	MANAGING DIRECTOR	GLORIFIED ORTHOTECH
12	MR ASISH MOHANDAS	FOUNDER & CEO	CUREOUS LABS
13	MR JITHIN VIDYA AJITH	COO & CO-FOUNDER	ASTREK INNOVATIONS
14	MR SATHYANARAYANAN A R	FOUNDER & CEO	EMBRIGHT INFOTECH
15	DR ASHIQUE HYDER ALI	CEO & FOUNDER	TRAVANCORE REHAB

Participants:

SL NO.	NAME	DESIGNATION	ORGANISATION
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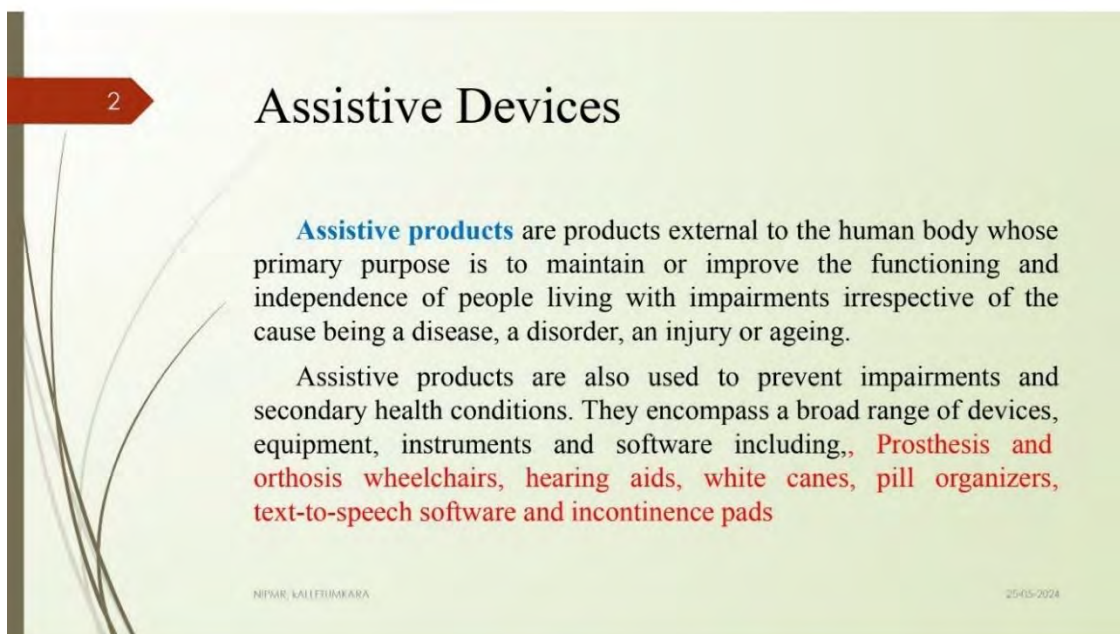
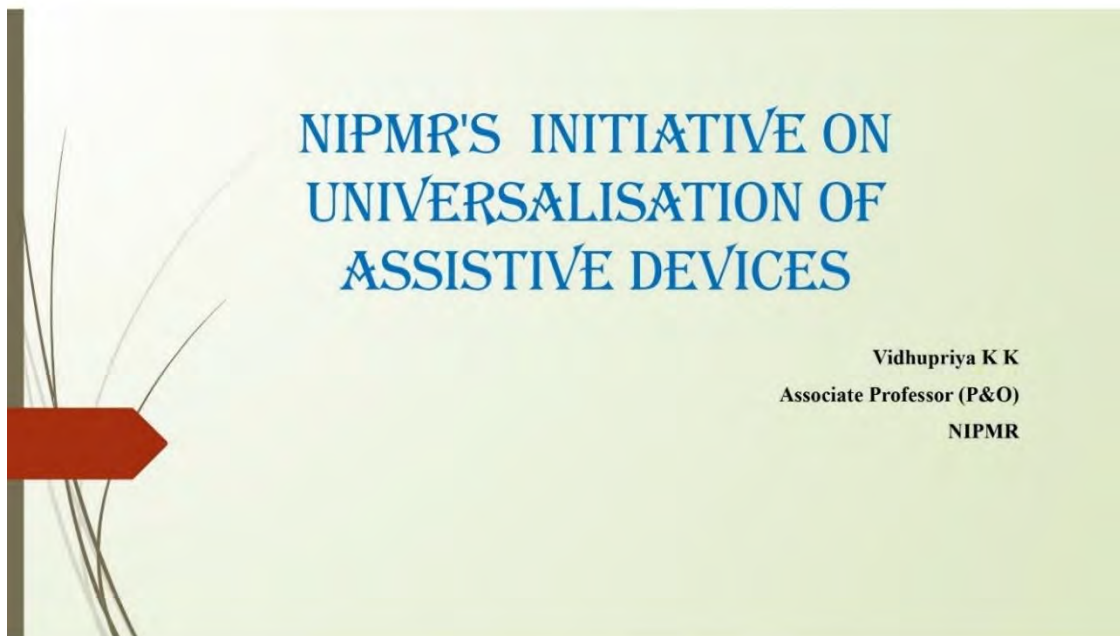
1	DEEPU GOPAL	DEVELOPMENTAL THERAPIST	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
2	NIMISHA JOSEPH C	PHYSIOTHERAPIST	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
3	REMYA M M	PHYSIOTHERAPIST	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
4	SREELA S	PHYSIOTHERAPIST	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
5	NIYA UNNI NU	PG STUDENT	COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY (CUSAT)
6	SUJITHA T V	NURSING ASSISTANT	AMALA HOSPITAL, THRISSUR
7	SR GREESHMA JOSEPH	SPEECH THERAPIST	AMALA HOSPITAL, THRISSUR
8	RADHIKA RENJITH	PG STUDENT	COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY (CUSAT)
9	DEVI DAS	PG STUDENT	COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY (CUSAT)
10	VEENA P CHANDRAN	DEVELOPMENTAL THERAPIST	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
11	ABHINAV KRISHNA C S	OT	AMALA HOSPITAL, THRISSUR
12	AMARNATH	CO-FOUNDER	NAWE ROBOTICS
13	RESHMI RAJEEV	DENTIST	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
14	SANDHYA GOVIND	SENIOR PROJECT COORDINATOR	CYRIX HEALTHCARE
15	ARYASREE SANTHOSH	COORDINATOR	CYRIX HEALTHCARE
16	AMALNATH	PROJECT ENGINEER RNT	CYRIX HEALTHCARE
17	AKSHAY P	STUDENT	MG UNIVERSITY
18	TOM GEORGE	FOUNDER AND MANAGING DIRECTOR	GUARDIAN ANGEL HOMECARE
19	ALEN GIGI ABRAHAM	STUDENT	SB COLLEGE, CHANGANASSERY
20	ADITYA KRISHNA M K	STUDENT	MG UNIVERSITY

21	ANAGHA K	STUDENT	CHRIST COLLEGE, THRISSUR
22	NAVYA PAUL	STUDENT	CHRIST COLLEGE, THRISSUR
23	DR REMYA GEORGE	ASSOCIATE PROFESSOR AND HEAD	ADI SHANKARA INSTITUTE OF ENGINEERING AND TECHNOLOGY, KALADY
24	SREEDEVI K	STUDENT	MADRAS SCHOOL OF SOCIAL WORK
25	VARSHA T ALEX	STUDENT	SB COLLEGE, CHANGANASSERY
26	DR SANITHA SATHYAN	OPHTHALMOLOGIST	VETTAM EYE HOSPITAL
27	ABHIJITH K A	NGO PARTNER	PRAJAAHITA FOUNDATION
28	SREEJILL E P	NGO PARTNER	PRAJAAHITA FOUNDATION
29	AMIT KUMAR SINGH	ASSOCIATE PROFESSOR	NIT CALICUT
30	DR NEENA T V	CONSULTANT PHYSIATRIST	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
31	ARAVIND S A	STRATEGIC CONSULTANT	NISH
32	MUNEER K H		GLORIFIED ORTHOTECH
33	DR SILPA P A	CEO	NANOGRAP PRIVATE LIMITED
34	DR V SAMPATH KUMAR	CEO	SR ASSISTIVE TECHNOLOGIES PVT LTD
35	JOHNSON VARGHESE	AO	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
36	VEERAKUMAR	CEO	SR ASSISTIVE TECHNOLOGIES PVT LTD
37	DR KEERTHY S	PAEDIATRICIAN	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
38	DR PREETHI M	CEO	TBI, NIT, CALICUT
39	SHAHANA SANAM	SOCIAL WORKER	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)

40	SREEJA C S	SOCIAL WORKER	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
41	SREEJITH VASU	SOCIAL WORKER	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
42	JESNI C	SOCIAL WORKER	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
43	LINTA JOSE	SOCIAL WORKER	NATIONAL INSTITUTE OF PHYSICAL MEDICINE & REHABILITATION (NIPMR)
44	JOJO THOMAS	SOCIAL WORKER	NIPMR
45	DR ARUN KRISHNA	DOCTOR	DAYA HOSPITAL
46	GEORGE DENISE DCOSTA	CMO	D'COSTA MARKETING CO
47	SURAJ SIMON VARGHESE	FOUNDER, CEO	REMAP INTELLIGENCE
48	RATNA KUMAR K	ASSISTANT PROFESSOR	NIT, CALICUT

7.3 PRESENTATIONS

MS VIDHUPRIYA K K, ASSOCIATE PROFESSOR, BACHELOR IN PROSTHETICS & ORTHOTICS (BPO) PROGRAMME, NIPMR



The National Institute of Physical Medicine and Rehabilitation (NIPMR) in India is renowned for its commitment to advancing rehabilitation medicine and providing high-quality care to individuals with disabilities. NIPMR plays a crucial role in research, education, and clinical services in the field of physical medicine and rehabilitation.

NIPMR provides a wide range of rehabilitation services to people with disabilities. The institute has a team of **experienced professionals who are experts in the diagnosis, treatment, and rehabilitation of people with disabilities**. It also conducts research in the field of rehabilitation and trains health professionals in rehabilitation.

The National Institute of Physical Medicine and Rehabilitation (NIPMR) is the first institute in Kerala to implement the **WHO TAP (Training in Assistive Products)** project in Kerala. The project, which is funded by the World Health Organization, aims to raise awareness about the need and use of assistive devices for people with disabilities, is a significant step forward in the fight against disability in Kerala.

By raising awareness about the need for assistive devices and providing training to health workers, the project will help to improve the lives of people with disabilities in the state.

Prosthetics and Orthotics Department

Department of P&O at NIPMR provide customized aids and appliances and other assistive devices to persons with loco motor disabilities through both

- Institutional based services and
- outreach services (CBR)

Direct service activity(2023-2024):

SL. NO	TYPES OF CASES	NO. OF CASES REGISTERED
1	New cases	247
2	Follow up cases	138
3	Total cases	385

Service During year (2023-2024)

SL NO	P&O DEVICES	NUMBER
1	Lower extremity Orthosis	126
2	Upper extremity Orthosis	14
3	Lower extremity Prosthesis	07
4	Upper extremity Prosthesis	03
5	Surgical Shoe	11Pair
6	Spinal orthosis	05
7	Mobility aids	06
8	Shoe Modification	36
9	Repairing of appliances	14
10	Total	222

NIPMR, KAI LETUMKARA

25-05-2024

Providing Assistive Technology Services in Less Resourced Settings

One strategy to provide assistive technology in less resourced settings is **Community Based Rehabilitation(CBR)**. CBR is frequently the vehicle to meet assistive technology needs among more vulnerable groups, including younger people.

In addition to the direct service activity NIPMR also doing out reach services (CBR) through camps at various panchayat levels . We assess, measure, and fabricate and distribute the devices at camps organized by the combined effort of the **institute as well as different local level administrations.**

NIPMR, KAI LETUMKARA

25-05-2024

Principles that guide the provision of assistive technology

Strategies for providing assistive technology need to consider the principles of **5A & Q**

- Availability
- Accessibility
- Affordability
- Adaptability
- Acceptability and
- Quality

A glance of Assistive devices at NIPMR

- Upper Extremity orthosis
- Lower extremity orthosis
- Spinal orthosis
- Upper extremity Prosthesis
- Lower Extremity Prosthesis

11

Upper Extremity orthosis



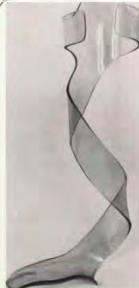
NIPMR, KALLEUMKARA



25-05-2024

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Lower extremity orthosis



ETUMKARA



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13

Lower extremity orthosis



14

Spinal orthosis



25-05-2024



Upper extremity Prosthesis



17

Lower extremity prosthesis



NIPMR, KALLETUMKARA

25-05-2024

18



NIPMR, KALLETUMKARA

25-05-2024

Assistive Products That Aids In Mobility

- Walking sticks and Crutches
- Walkers and Rollators
- Portable Ramps
- Grab Bar
- Transfer Boards
- Therapeutic Shoes
- Wheel chair
- Posterior walking frames
- Standing frames and lying supports

NIPMR, KALLETUMKARA

25-05-2024

Walking sticks



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NIPMR, KALLETUMKARA

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Crutches



25-05-2024

NIPMR, KALLETUMKARA

22

Walkers and Rollators

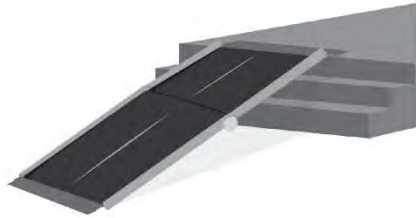


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NIPMR, KALLETUMKARA

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Portable Ramps



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NIPMR, KALLETUMKARA

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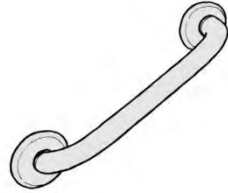


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NIPMR, KALLETUMKARA

24

Grab bars



25-05-2024

NIPMR, KALLETUMKARA

25

Curved Transfer boards



Straight



25-05-2024

NIPMR, KALLETUMKARA

26



25-05-2024

NIPMR, KALLETUMKARA

27

Wheel chair



25-05-2024

NIPMR, KALLETUMKARA

28

Assistive Technology for People with Visual impairment

- Screen Readers
- Magnifiers
- Braille
- Electronic book
- Computer
- Large print
- Key board navigator
- Dictator

Screen Readers



Magnifiers



25-05-2024

NIPMR, KALLETUMKARA

32

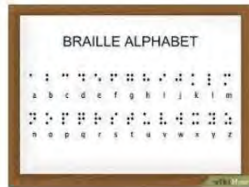


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NIPMR, KALLETUMKARA

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Braille



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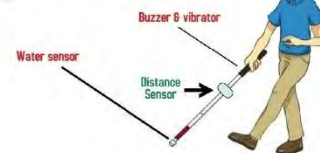
NIPMR, KALLETUMKARA

33

Blind Sticks



Smart Blind Stick With



25-05-2024

NIPMR, KALLETUMKARA

34

MR ABIRAM U, ASSISTANT PROFESSOR GRADE II, BACHELOR IN OCCUPATIONAL THERAPY (BOT) PROGRAMME, NIPMR

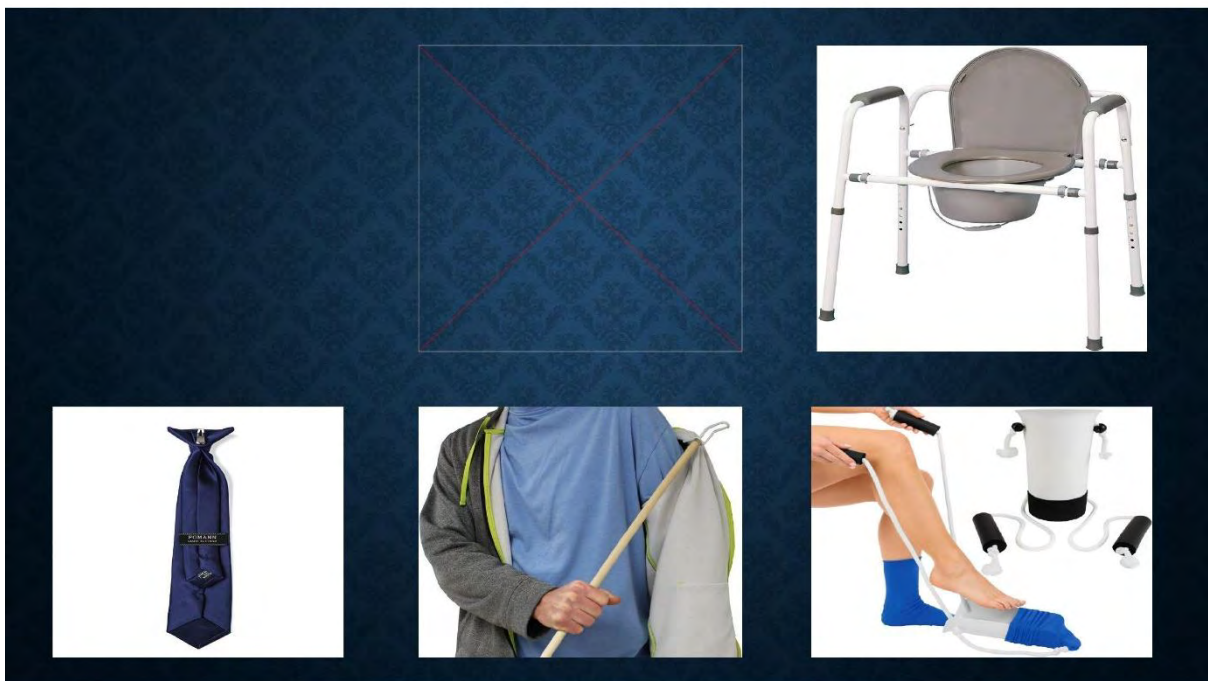
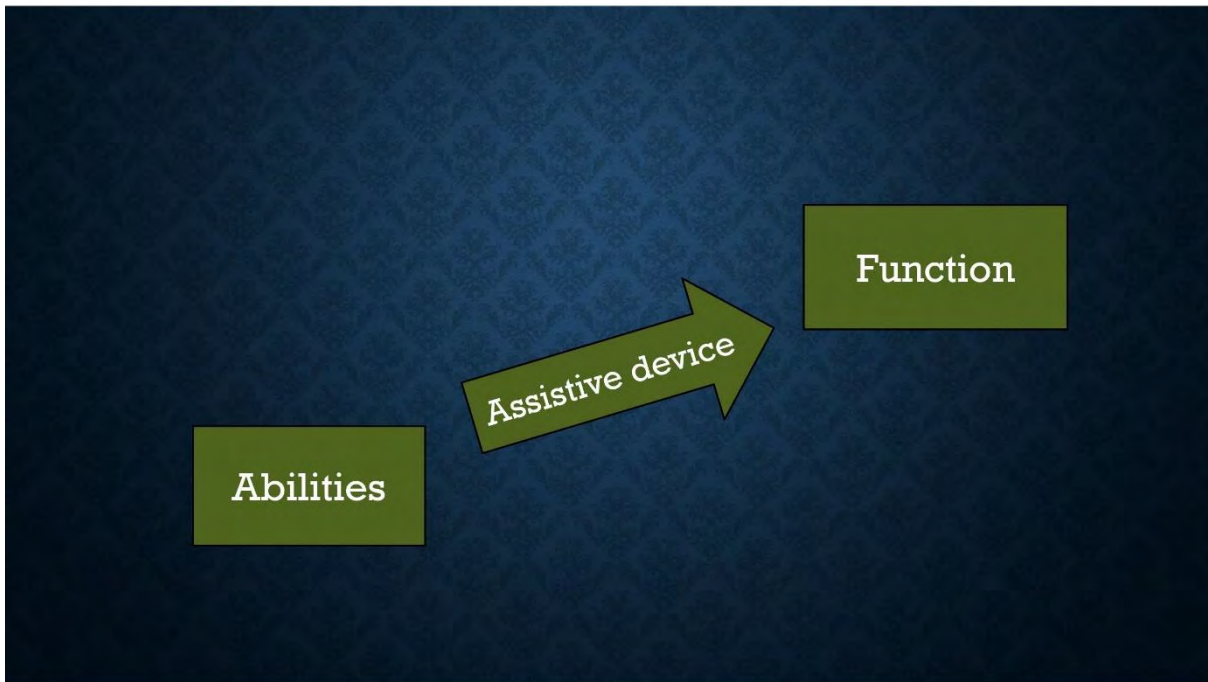
OCCUPATIONAL THERAPY: ASSISTIVE TECHNOLOGY AND SPLINTS

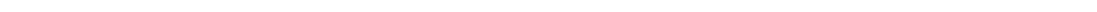
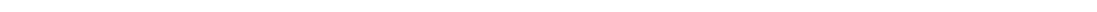
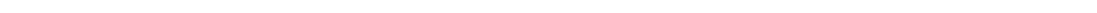
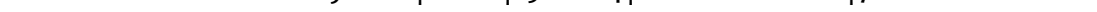
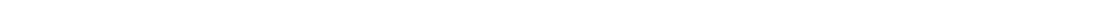
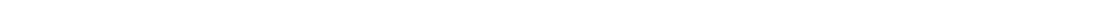
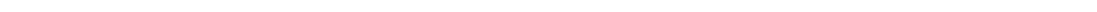
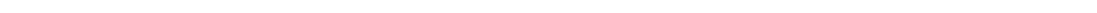
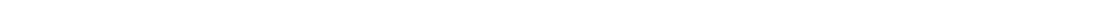
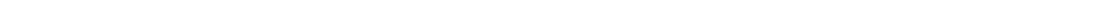
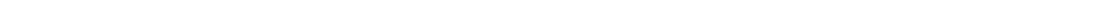
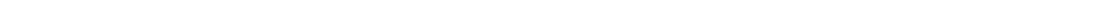
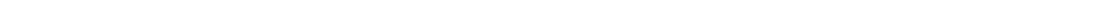
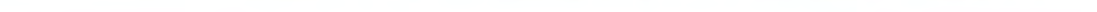
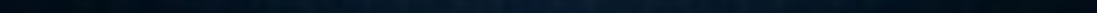
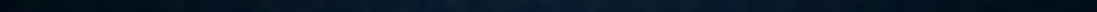
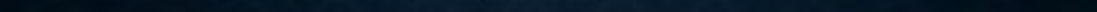
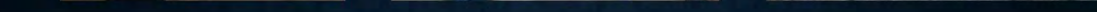
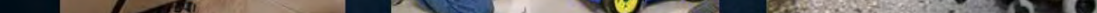
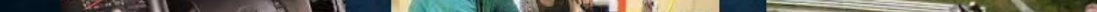
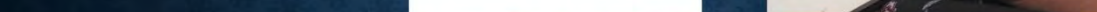
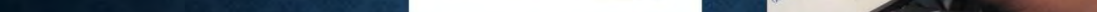
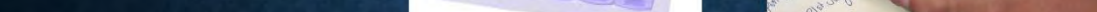
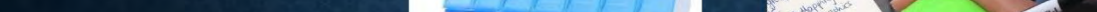
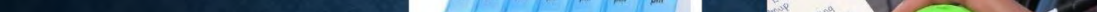
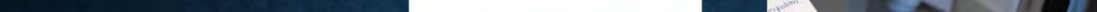
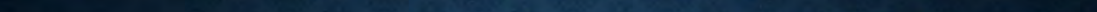
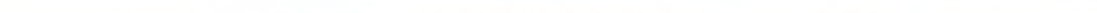
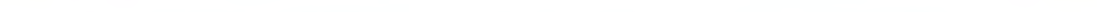
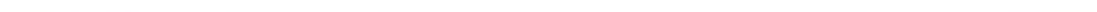
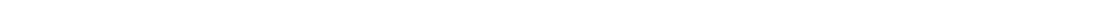
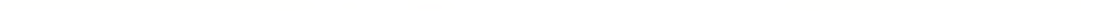
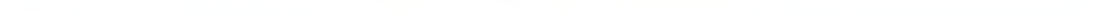
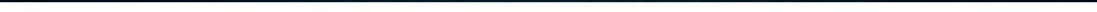
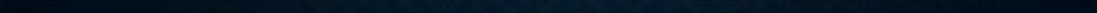
Enhancing Functionality and Independence

Abiram U, MOT
Assistant Professor
BOT Programme, NIPMR

WHAT ARE SPLINTS AND ASSISTIVE DEVICES

- Splints are orthotic devices used to support, immobilize, or protect a body part. They can also assist in supporting function and increasing range of motion.
- Assistive devices encompass a wide range of tools and equipment designed to enhance functional abilities and promote independence for individuals
 - Any piece of equipment that's been adapted to make life easier could be considered adaptive equipment







I	are	do	feel	go	have	like	what
he	is	was	to	cry	talk	want	when
she	it	not	about	death	heaven	question	where
alive	at peace	calm	good	happy	nice	OK	who
dead	worried	angry	bad	sad	scared	hurt	why

UNIQUENESS

- Affordable
- Personalized & Custom made
- Ergonomic design
- Holistic treatment model
- Function oriented devices
- Proper follow-up
- Low fabrication time

CHALLENGES

- Technical expertise
- Low awareness
- Establishing evidence
- Skilled Manpower
- Outreach and follow-up

CURRENT SCENARIO

- Started the splinting and AT unit in 2018
- Currently catering to IPs and Ops
- Referrals form various hospitals and centres across Kerala
- Catering to various camps of NIPMR
- A model unit for other units in Kerala

FUTURE INTENTIONS

- Reach the unreached
- Technology assisted assessments and follow-up
- Collaborating to make accessible , efficient, scalable, affordable assistive products
- Research on the efficacy of splints and assistive products
- Awareness
- Early intervention

MS PADMAPRIYA K, HEAD, DEPARTMENT OF AUDIOLOGY & SPEECH LANGUAGE PATHOLOGY, NIPMR



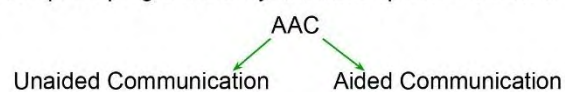
DEPARTMENT OF AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY

“Speak Your Mind, Not Just Your Words”

Padma Priya K
HOD - Department of ASLP
NIPMR

Augmentative and Alternative Communication

- Augmentative and alternative communication (AAC) devices help people with communication disorders to express themselves.
- These devices can range from a simple picture board to a computer program that synthesizes speech from text.





Unaided Communication

Unaided mode of communication –nonspoken- means of natural communication (including gestures and facial expressions) as well as manual signs.

These modes of communication often require adequate motor control and communication partners who can interpret the intended message.



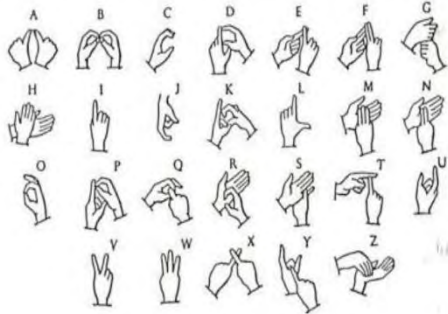
Aided Communication

Aided modes of communication - require some form of external support, such as a communication boards with symbols (e.g., objects, pictures, photographs, line drawings, visual-graphic symbols, printed words, traditional orthography) or computers, handheld devices, or tablet devices with speech generating softwares.

Aided communication uses equipment- can range from low-tech to hi-tech methods and often uses pictures and symbols instead of, or together with words.



Unaided Communication



Aided Communication

Low Tech

High Tech



Low Tech

Communication Board



Communication Book



PECS



BIG MACK



- An Augmentative & Alternative Communication device
Single message speech generating device.
- Record messages directly into the communicator and press its activation surface for play back, up to 2 minutes of high quality play back recording time built in.



BIG MACK

Features

- Large single button, single message device for quick and easy communication.
- 2 minutes recording time.
- Volume control and on/off switch.
- Toy/appliance jack, cable included.
- Includes interchangeable tops in red, blue, yellow and green.
- External switch jack for speciality switch operation.
- 1 x 9V battery
- Dimensions: 16cm x 4.5cm x 17cm.



SUPER TALKER PROGRESSIVE COMMUNICATOR



It is an Augmentative & Alternative Communication device with one, two, four, or eight message locations.

Eight recording levels give you the ability to record up to 64 unique messages.

Activation Type Pressure

Activation Surface Size Large (over 3.6-in or 9.1-cm)

Recording Time-16Minutes

Number of Message Locations 1, 2, 4, or 8

Weight 33.6-oz

Weight - Metric 953-g



AVAZ



Avaz is an Augmentative and Alternative Communication App that empowers children & adults with any other condition/cause of speech delays, with a voice of their own.



AVAZ

iOS

- Avaz runs on iPads, iPad Minis, iPad Pros and iPhones.
- The minimum configuration is that the iPad and iPhone should run Apple's iOS version 11.0 or above.

Android

- Android ver 7.0
- Screen size – 6"
- RAM - 2 GB
- Storage / Internal memory - GB free space



Big Track Ball

Clevy Keyboard

Head Pointer



Hearing Aids

A hearing aid is a small electronic device that you wear in or behind your ear. It makes some sounds louder so that a person with hearing loss can listen, communicate, and participate more fully in daily activities. A hearing aid can help people hear more in both quiet and noisy situations.

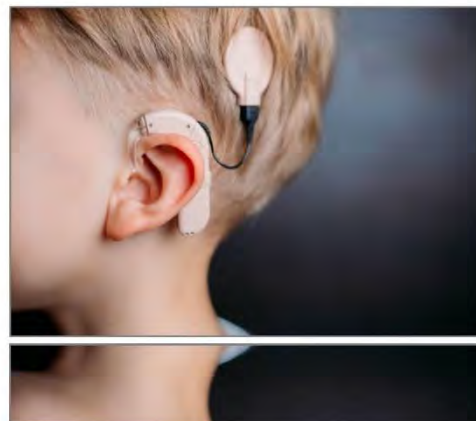


Hearing Aids



Cochlear Implants

A cochlear implant (CI) is a surgically implanted neuroprosthesis that provides a person who has moderate-to-profound sensorineural hearing loss with sound perception.





Auditory Verbal Therapy

Auditory Verbal Therapy (AVT) is a type of early intervention therapy for young children who are deaf and hard of hearing, or those who use hearing technology such as hearing aids or cochlear implants.



SESSION BY **DR SINDHU VIJAYAKUMAR**, EXECUTIVE DIRECTOR, FOUNDATION FOR INTERNATIONAL REHABILITATION RESEARCH AND EMPOWERMENT (FIRRE), A NATIONAL LEVEL NGO & ASSOCIATE PROFESSOR, DEPARTMENT OF PHYSICAL MEDICINE & REHABILITATION (PMR), AMALA INSTITUTE OF MEDICAL SCIENCES, THRISSUR

Assistive Technology: My Perspectives and Future Directions



Dr. Sindhu Vijayakumar
MBBS, MD, DNB

Certified Assistive Technology Professional

Associate Professor of PMR, Amala Institute of Medical
Sciences, Thrissur, Kerala

Executive Director, Foundation for International
Rehabilitation Research and Empowerment (FIRRE)



May 25, 2024



Experience @ NIPMR

- August 2018 to March 2022 - full time, then as consultant
- E.D.: Dr. Asheel
- Worked through two major calamities – floods and Covid19
- Majorly Involved Projects:
 - **Spinal Cord Injury Rehabilitation Unit**
 - **Wheeltrans**
 - **Instrumented Gait and Motion Analysis Lab**
 - **Virtual Reality Based Motor Rehabilitation Unit**
 - Centre for Mobility and Assistive Technology (CMAT), ADL Apartment, many new assistive devices, etc.



Certificate Course in Assistive Technology Solutions

- 2019 Jul-Dec
- Jointly organized by NISH, NIPMR and KDISC
- Learner Facilitator Mentor
- Assessor (Clinician) Prescriber Trainer
- Assessor (Clinician) Prescriber Developer



AT Course Graduate

- As a physiatrist, background of mobility and ambulatory aids, prescribed routinely – mostly physical / Locomotor disabilities
- Better understanding of technology for other disabilities – visual, speech, hearing, intellectual
- Able to better understand designs, better communication with engineers / developers / manufacturers
- Networking with other AT Experts

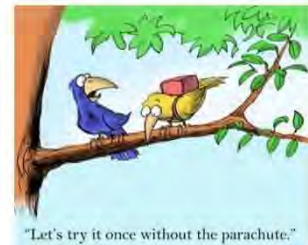


AT Course Alumni

- Many AT Projects
- Mentoring many Start-up companies – Desintox Technologies, Genrobotics, Astrek Innovations, Cureous Labs, Cre-Aid Labs, to name a few



Mentoring Start ups



- Astrek since 2019
- Pro bono at present – would definitely like to change
- Difficult adhering to timelines
- Many other engagements – especially clinical
- What happens when the product is ready?
(നന്നി മാത്രേ ഉള്ളൂ ഒല്ല)

Empowerment Activities

- Co-founder of NGO, FIRRE (Foundation for International Rehabilitation Research and Empowerment) working towards empowerment of persons with disabilities
- **Four members are Certified Assistive Technology Professionals**
- With better understanding of AT, able to service more persons with appropriate devices
- Research oriented camps to improve AT devices



NGO, FIRRE

- Associating with other organizations
- **Bridging the gap** between Government systems, NGOs and other private organizations
- To enhance awareness, increase independence and empower.



Medical Camps, Vocational Training, AT Exhibitions



Indian make devices – Technological Explosion



Neomotion



Transfer Devices



Exoskeletons – Upper and Lower Limbs



Clinical trial of body powered EWHO



Present AT Scenario

- Lack of awareness galore
- Potential users have no clue what to expect
- Many startups making many new and useful devices for persons with disabilities
- Many efforts by interested individuals and organizations.....The “GAP” in AT ecosystem
- Still, ECUs, Vehicle and Home modifications, etc. are considered luxury
- BUT.... PROBLEM IS

Present AT Scenario

- Startups/engineers who make AT do not know enough about persons with disabilities (PwD)
- Reinventing the wheel - issue
- Experts who know PwDs do not know enough about technology to prescribe or do not take an active role
- HIGH REJECTION RATE
- BUY OFF THE SHELF
- CHARITY AT

Challenges: Govt. sector

- Most devices distributed through camps –
- Prescribers – Govt. doctors not up to date with technology or aware of rehab
- Other stakeholders – preset system with low quality devices – no scope to prescribe customized devices – scenario slightly changed since 2018 when NIPMR took initiative to educate LSGDs
- PwDs, caregivers – expectations without knowledge (came for camp, should get something, even if not useful)
- Delays

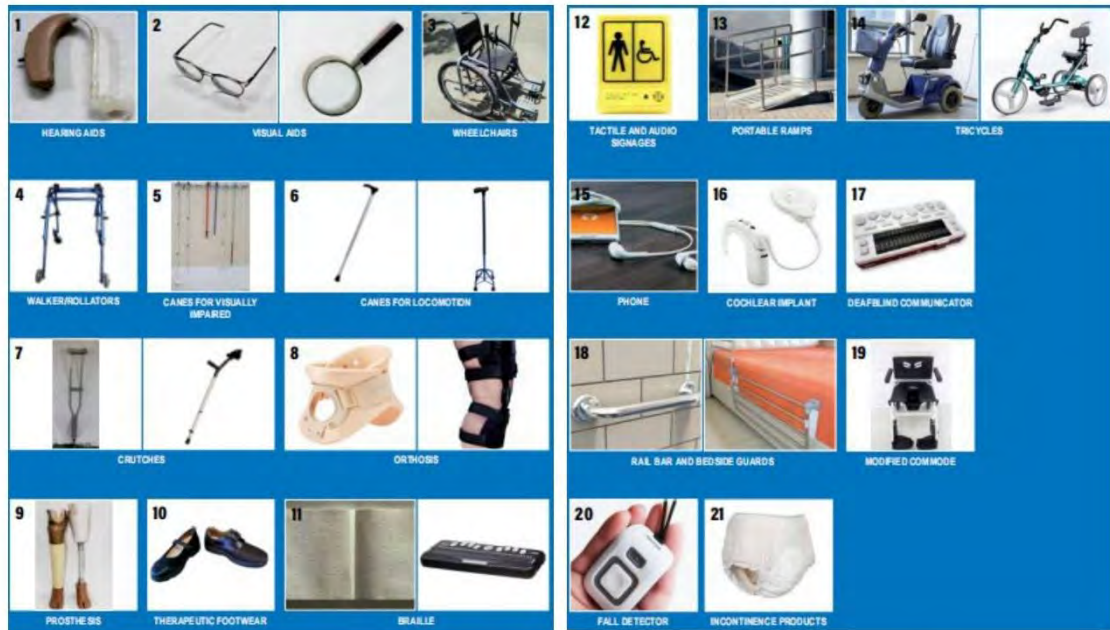
Challenges: Private sector

- Cost, cost and cost.....
- Patients (mostly seen in acute settings) can not afford
- Most PwDs do not reach/get appropriate services
- Inadequate rehab referrals

Challenges: Palliative/NGO sector

- Most rehab now being done in this sector
- But..... No Physiatrist involved.....
- Free of cost provision of many devices – may or may not be appropriate
- Tendency for a dependent culture – expect every thing delivered at home – PwDs not taking over their life or financial independence
- However, some quality of life offered through door-step services

NLEAP – National List of Essential Assistive Products (ICMR)



PMR Assistive Technology Clinics Every Two Weeks



Amala Assistive Devices Support (AADS) Program

- High end assistive devices – prostheses, communication devices, functional orthoses, etc.
- Financial support by Amala Institute of Medical Sciences, received through sponsorships
- Financial assistance, not free



Amala Assistive Devices Support (AADS) Program

- High end assistive devices – prostheses, communication devices, functional orthoses, etc.
- Not available through government systems/camps/palliative care services
- Financial support by Amala Institute of Medical Sciences, received through sponsorships
- Financial assistance only, not free

Future Directions

1. Strongly discourage off the shelf purchase of assistive devices
2. No right or wrong – highly individual
3. Physiatrists understand person with disabilities, their abilities and weaknesses so prescribe any assistive device with confidence – be open to try out different devices
4. Involve PwDs right from the start so that there is less rejection
5. Integration of all sectors

Future Directions

6. Dedicated, strong system, akin to developed countries
 - Automatic referral to rehab from acute care
 - AT trained team of Physiatrist, occupational therapist, ASLP and care coordinator @ rehab
 - manufacturers/Start ups providing prompt services, customizing as appropriate
7. Financial support to start ups and PwDs alike
8. Strong research and awareness initiatives
9. Foreign sale

Future Directions – Already up!

- Integrated efforts by KMTC, Kerala Startup Mission
- IMA taking a lead
- YIPs

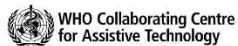


SESSION BY

- **MR ARVIND SURESH AMBALAPUZHA**, STRATEGIC CONSULTANT, NATIONAL CENTRE FOR ASSISTIVE HEALTH TECHNOLOGY (NCAHT), NATIONAL INSTITUTE OF SPEECH & HEARING (NISH)
- **MR SHANTOSH CUMARASURIER**, INNOVATION CONSULTANT, GLOBAL DISABILITY INNOVATION (GDI) HUB, UNIVERSITY COLLEGE LONDON (UCL)



GDI Hub Accelerate
attvaran
accelerate India



GDI Hub



Global Disability Innovation (GDI) Hub accelerates ideas into impact for a more just world - for disabled people, and all people.



41+ countries.
35 million people.
100+ partners.

New technologies & ecosystems | Supporting & scaling innovations |
Shaping markets | Pioneering research | Sharing knowledge | Taking risks



In 2016 the team behind
2012 legacy joined **top**
academic institutions to
launch GDI Hub.

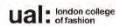


Our Story



London 2012 Paralympics Games sparked commitments from our Founding Partners to work collectively continue work on disability innovation, around the world..

Founding Partners:



GDI is two things; Academic Research Centre (ARC) and Community Interest Company (CIC), both hosted by UCL. It was launched by the Mayor of London on the eve of the Rio 2016 Paralympic Games.



Addressing global challenges we now work in more than 41 countries, with 100+ partners, on programmes of approximately £50m. We have reached 35m people and published more than 150 influencing papers since 2018.

ASSISTIVE TECHNOLOGY ACROSS EMERGING MARKETS



We spark **transformative outcomes** by doing things differently.

What we do



WHO Collaborating Centre
for Assistive Technology

We're the world's first
**WHO Global
Collaborating Centre
on AT.**

Testing 'what works' on Assistive Tech



1

Data & Evidence

2

Innovation

3

Country implementation

4

Capacity & Participation



Our innovation arm

A powerhouse of insight, innovation and technical excellence – we design, test, and scale solutions.



Our innovation arm



Insights Hub

An accessible collection point for leading-edge research, data, evidence and insight.



By harnessing data and plugging into macro shifts and promising ideas, we can build on the sparks of innovation to accelerate change - helping guide ventures to success.



Venture studio

Global programmes to nurture the next generation of Assistive Tech (AT) pioneers - supporting products to scale.



By lowering the barriers to participation, we create a safe space for ventures and start-ups to rapidly explore new concepts and business models to create market-ready products.



Bespoke consultancy

Working with business, governments and multilateral organisations to deliver global AT solutions across ecosystems.



By unlocking new innovation pathways, we overcome wicked problems - tackling product and market-based challenges to maximise impact— testing solutions and convening the global AT community.

We power ideas to scale

- Our Kenyan based Innovate Now accelerator was **Africa's first AT accelerator** – it has now supported over 45 ventures.
- Our UK aid funded **Assistive Tech Impact Fund** has supported the most promising AT ventures in Africa through a combination of catalytic capital with expert-led venture-building.
- We drive **home grown technology** through our world leading research centre.





GDI Hub Accelerate

attvaran

accelerate India

Attvaran is a collaborative program



Tigmanshu Bhatnagar



PVM Rao



Shantosh Cumarasurier



Justin Jesudas



Arvind S.A



Louise Gebbet



Harrison Kamau

Objectives

- **Understanding the consumer:** Gain valuable insights into the needs and preferences of your target audience.
- **Develop Products that people love:** Create products that resonate with people and foster strong brand loyalty.
- **Convert Consumers into Customers:** Effectively turn interested individuals into paying customers through targeted strategies.
- **Scale & Grow** Expand your business and achieve sustainable growth.
- **Foster Entrepreneurial Success:** Equip entrepreneurs with the skills and knowledge necessary for successful business ventures.



Culture

- Every selected team will be supported in their journey by a business mentor and persons with a disability.
- Common lectures and workshops plus bespoke assignments, research work and mentoring sessions.
- Online sessions and in-person bootcamps.
- User centred, pragmatic, affordable, accessible and impactful.



Timelines

Program starts on 1st July 2024.

3 months intense engagement.

3 months of distance mentoring.



We **aim** to bring the AT ecosystem to you to do **Global Good.**





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A solid blue rectangular slide. In the top right corner is the Cureous logo. In the center, the text "We help you prevent bedsores and bedfalls, effortlessly." is written in white, with three small yellow starburst icons at the end of the sentence. At the bottom, there is a small line of fine print.

We help you prevent bedsores and bedfalls, effortlessly.

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The Cureous Story



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Awards, Grants & Support



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38%
Prevalence of Pressure Injuries in Hospitals in India
Prevalence

1.36 Cr
prone to pressure injuries in home-care settings in India
Cases

14 L
cases of death because of PI as a major factor
deaths

12 days
Average Increase in Hospital Stay, delays admission for others
LOS

₹4L
Spent/year in terms of money and time for bed sore treatment
Expenses

pressure injuries

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Pressure Injuries can be effectively prevented through frequent repositions, but they are resource intensive and cause musculoskeletal pain for Nurses.

1.8 Tons
Cumulative weight Nurses potentially lift during an 8 hour shift
Effort

80%
Nurses reported Musculoskeletal Pain due to patient Handling
Pain

Musculoskeletal disorders

48%
Injuries to Nurses that results in lost work days are due to patient handling.
Injury

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Automated Patient Turning & Alternating Pressure Relieving System

- 

Reduced Pressure Injuries (PIs)
Automatic turning helps prevent pressure ulcers, a significant cost burden for hospitals.
- 

Enhanced Patient Comfort
Frequent turning reduces discomfort and pain, leading to better sleep and overall well-being for patients.
- 

Improved Respiratory Function
Regular turning can help prevent pneumonia, a common complication for immobile patients.
- 

Reduced Musculoskeletal Disorders
Manual turning can lead to back injuries for nurses and aides.
- 

Freed Up Staff Time
Nurses spend less time manually turning patients, allowing them to focus on other critical tasks.



CDSCO Registered 

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Automated Patient Turning & Alternating Pressure Relieving System



No Manual 2 Hourly Patient Repositioning

Automated patient turning that eliminates painful and effort intensive manual repositioning for caretakers.



Effective Pressure Relief. Reduce Bedsores Incidence.

Effective Pressure distribution reducing the risk of bedsores, reduces treatment cost and LOS in Hospitals.



End To Sleep-Deprived Nights For Patient And Caretaker

End to sleep deprived nights for both patient and caretaker which otherwise gets affected for manual repositioning.

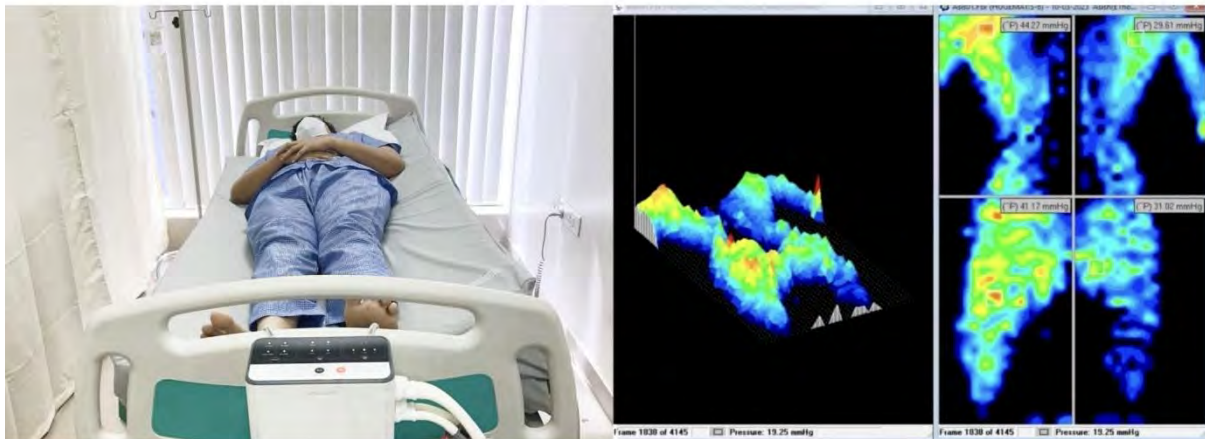


Patent Filed
Published in the US
US20220023124A1

CDSO Registered



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Layer™ x Vedge™ Commercialised



Turning & Repositioning Device



Deployed In Hospitals & Homes



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Layer™ Value Proposition



Effortless Vertical Boosting

Effortlessly execute vertical repositioning to elevate the patient to a more upright position in bed whenever they slide down, ensuring optimal comfort and care.



Seamless Horizontal Boosting

Horizontal boosting necessary for positioning a patient as well as before performing a turn. With Layer and its ergonomic handle design Horizontal Boosting is never a task.



Ergonomic Lateral Turning

Patient turning is an essential and recurring aspect of patient care. Layer streamlines this vital process, ensuring ergonomic & resource-efficient execution, making it effortless for caregivers.



Effective Pressure Relief Turn

By combining Layer with Vedge, achieving an effective pressure relief turn is a breeze. This combination ensures substantial offloading of the sacral region, greatly reducing the risk of pressure injuries.

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Anatomy-specific pressure relieving wheelchair overlay for effective pressure relief for wheelchair patients

Early Adoption



Overlay

Anatomically Designed Chambers

The overlay with its anatomy specific design relieves pressure in major bony prominence areas ensuring effective pressure relief as well as comfort.

Control Unit

Intelligent Pressure Relieving Algorithms

Intelligent Control unit with dedicated algorithms that can continuously adjust air flow for effective pressure relief according to different body weights.

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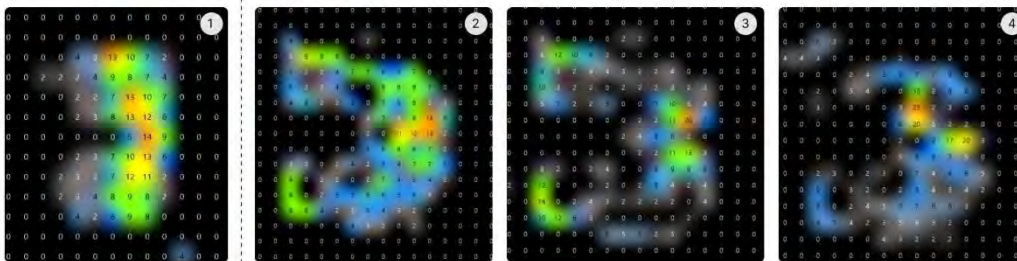
dynamyc evidence



Pressure Redistribution Details (heat map)

Pressure Map Results (80kg Person) On Wheelchair

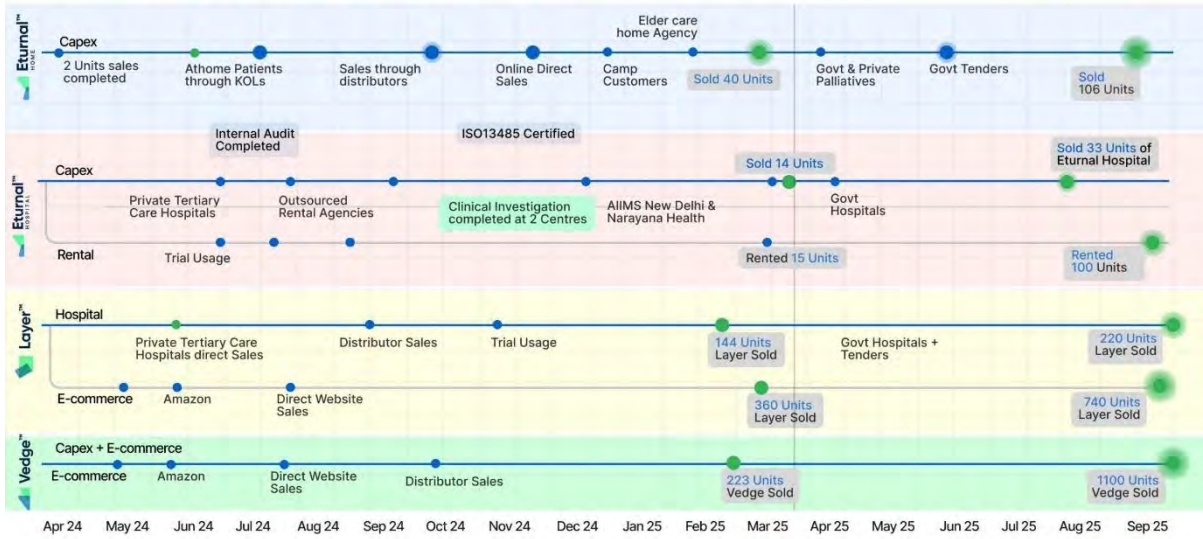
Image 1 shows the pressure distribution of a person on a wheelchair without any intervention. Images 2-4 shows the continuous pressure redistribution when the dynamyc wheelchair overlay being used. With its intelligent algorithm and anatomy specific design, the overlay continuously changes the pressure points, eliminating any pressure buildup.



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Deployment Plan - Next 18 months

3300+ Units Deployed, Impacting atleast 2L+ People



building technologies that empower independent living.

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Thank You

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Pincode - 560029

Phone
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website
www.cureous.in

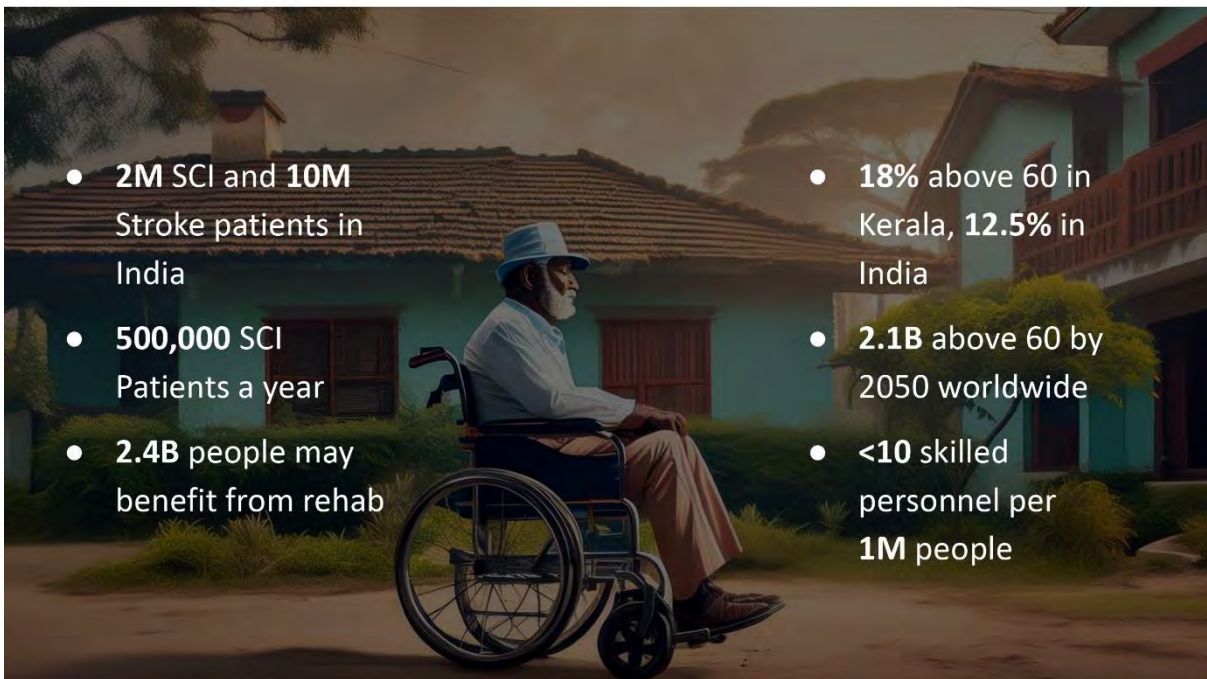


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Astrek Innovations

Elevating Human Potential,
One Step at a Time



- **2M SCI and 10M** Stroke patients in India
- **500,000 SCI** Patients a year
- **2.4B** people may benefit from rehab

- **18%** above 60 in Kerala, **12.5%** in India
- **2.1B** above 60 by 2050 worldwide
- **<10** skilled personnel per **1M** people

Unik Exo

Wearable Robotics for Lower Limb Rehabilitation



Lower Manual Effort

Higher Accuracy

Comfort & Ease of Use

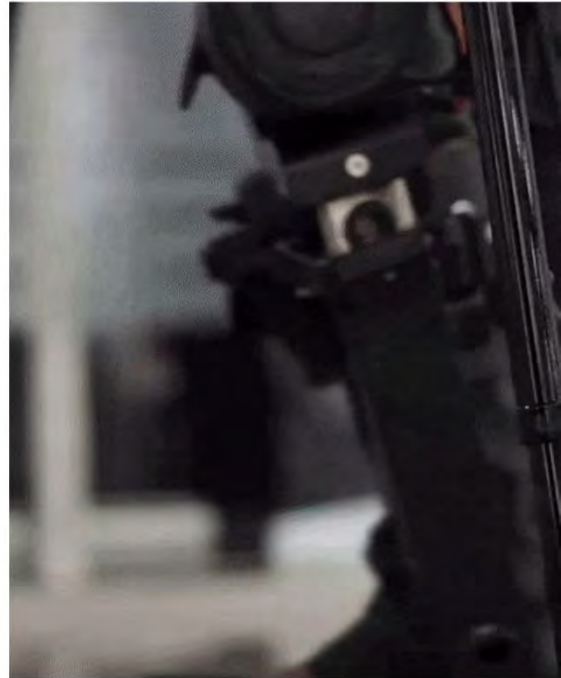
Modular Design

Portable



How it Works

Robotics & AI to transform any space to a
Portable Gait Lab



Simple & Intuitive



ROM exercises with adjustable speeds and angles

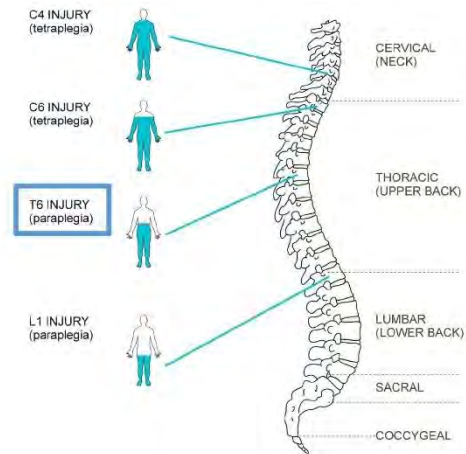


Real-Time Progress Monitoring & Control

Impact

FOR PHYSIOTHERAPISTS

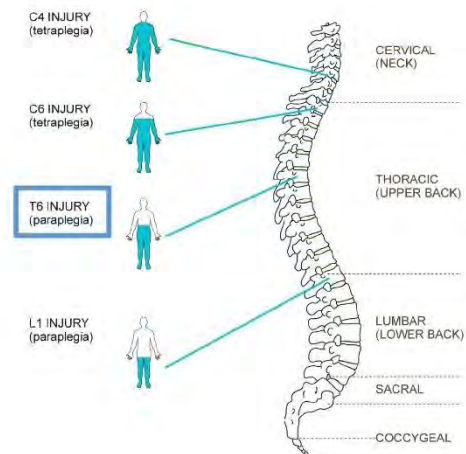
- Increased patient handling capacity, reduced physical strain
- Increased efficacy with precise, programmable movements
- Easy interface and adjustability for multi-patient use



Impact

FOR PATIENTS

- Improved quality of treatment and protocol adherence - lowers overall costs
- Increased efficacy with robotic precision - improved chances of recovery
- Boosts independence & confidence, reduces physical & mental fatigue



Achievements & Global Recognition


MeitY
 Government of India
 Microprocessor challenge
 winner


AARP
 Innovation Labs
 First Place

ST>RT-UPCHILE
 SEED G22



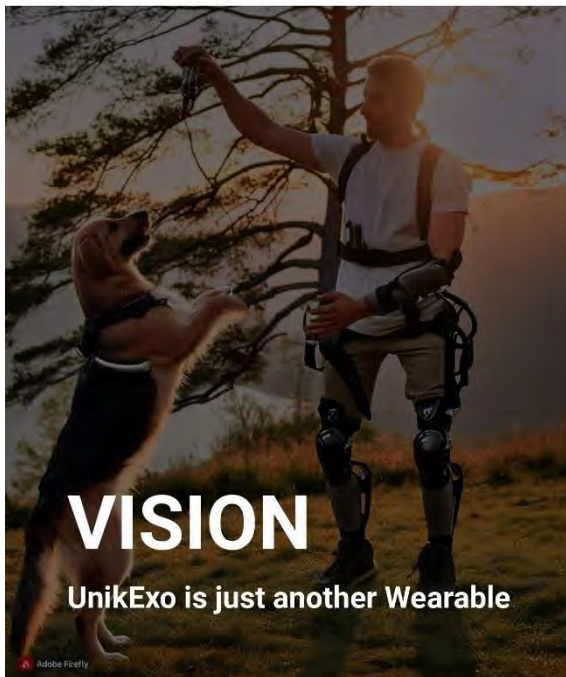
OIST Innovation Challenge Winner
 Okinawa Institute of Science & Technology, Japan
 Including Grants, Acceleration and Market Access



Best Product of the Year 2023
 Korean Association of Robot Industry, Korea Institute
 Robot Industry Advancement and South Korea
 Ministry of Trade, Industry and Energy



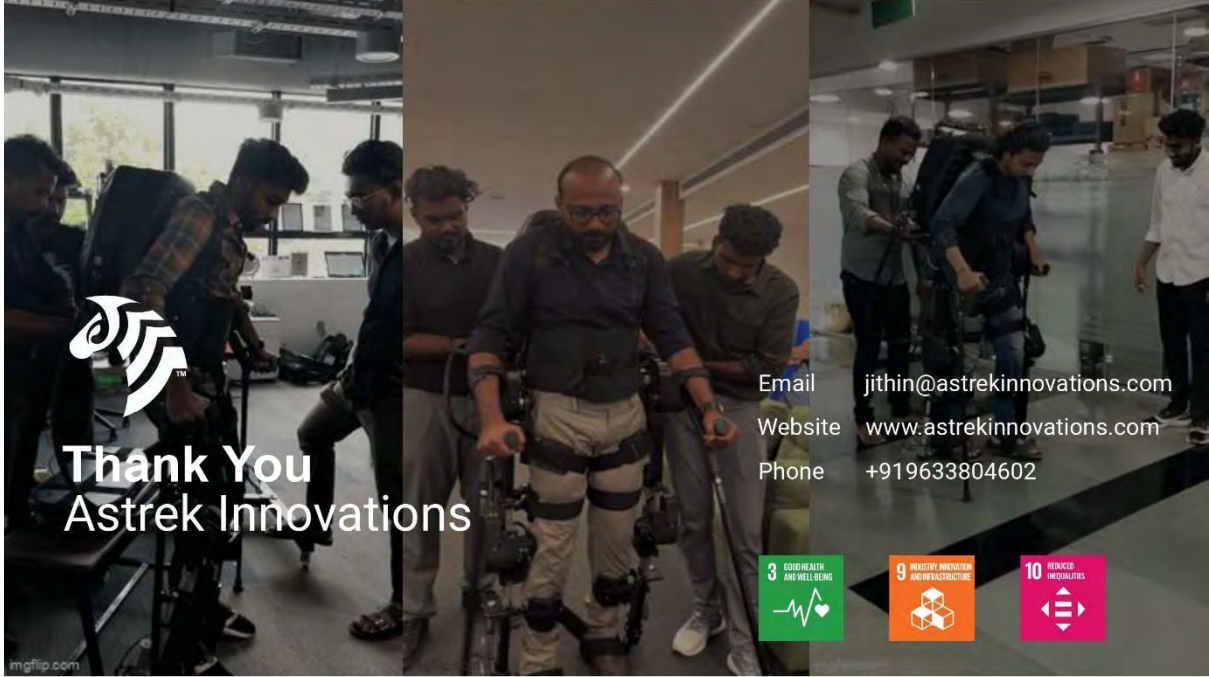
**1 Granted Patent,
 2 Patent Pending**



Disability is no longer a hurdle
 With assistive wearables, disability
 would not be 'the' defining factor in
 one's life choices

Treatment at one's convenience
 Patients could get professional,
 AI-driven therapy at their homes or
 outdoors

Exoskeletons are everyday devices
 Exoskeletons would just be another
 device worn to offices, shopping,
 beaches or even public transport



Thank You
Astrek Innovations

Email jithin@astrekinnovations.com
Website www.astrekinnovations.com
Phone +919633804602





AUTICARE

XR-AI based Assistive Technology Platform for Inclusive Learning. (For Autism Spectrum Disorder (ASD) & Special Education)




What is autism?

There is no one autism.

Autism, or autism spectrum disorder (ASD), refers to a range of conditions characterized by challenges with social skills, repetitive behaviors, speech and nonverbal communication. We now know that there is not one autism but many subtypes, caused by a combination of genetic and environmental influences, and many accompanied by medical issues such as GI disorders, seizures, anxiety disorders and sleep disturbances.



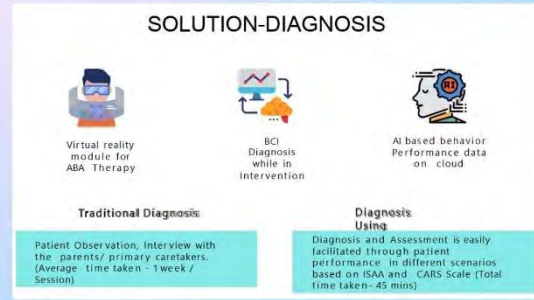
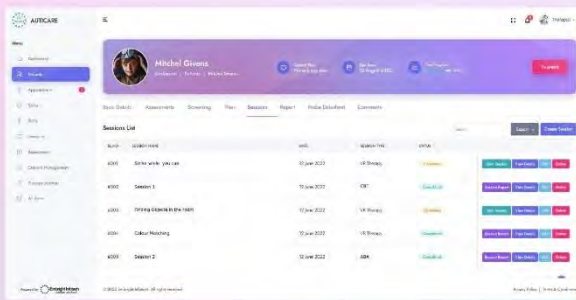
- More than 2 million people are affected with ASD in India every year with a global ratio of ~ 1:59.



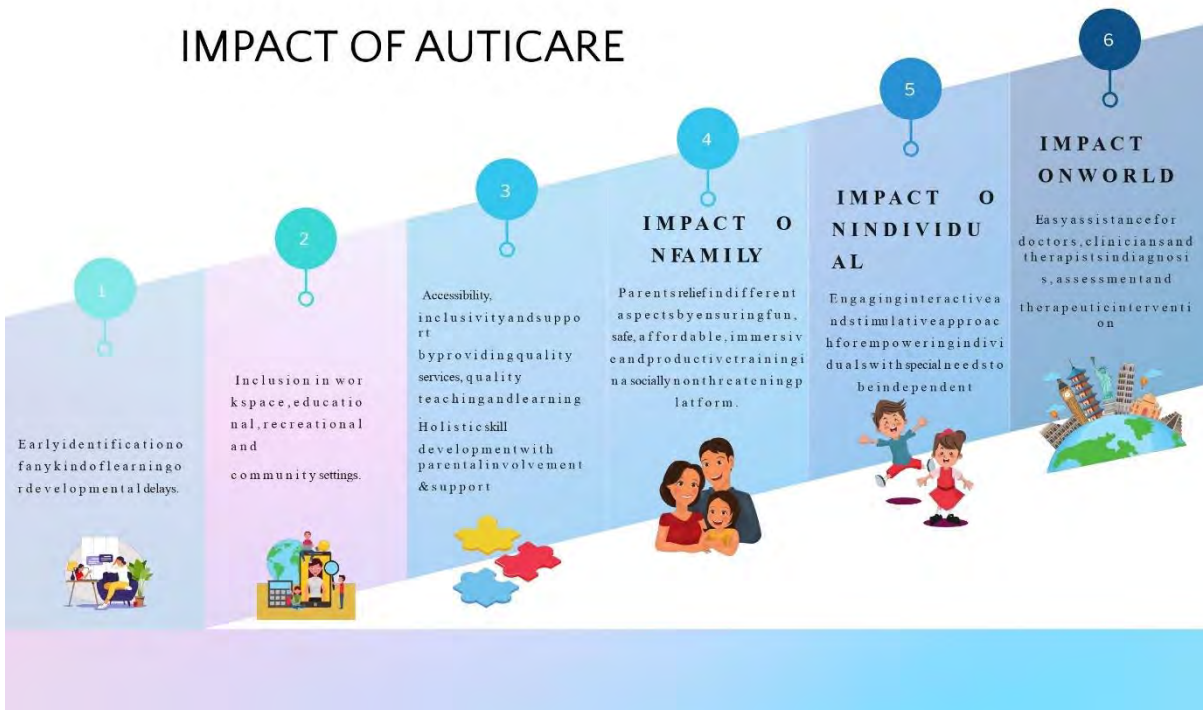
Current Problem

- Quality BCBA Therapist.
- ABA Therapy Understanding of how behaviour works to real situations
- Improved therapy interventions in intellectual disability.
- Performance data for determining patient's behavioural patterns.

Effective ABA Therapy using AUTICARE + Meta Presence platform



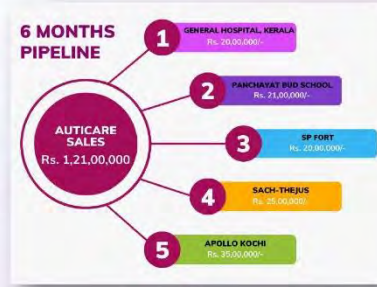
IMPACT OF AUTICARE



Business development Achievements

Major Business Achievements

- o Closed Revenue around 150K USD in 6 months.
- o 4 MoUs for business expansion, for state wise skill assessment expecting revenue growth of 40% in 5 months
- o Special education and Vocational Skill modules for Skill Ministry, expecting 40% revenue Growth in a year.



Product development Achievements



Meta – CIE Accelerator Program



THANK YOU

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www.myauticare.com

[https:// www.facebook.com/MyAuticare/](https://www.facebook.com/MyAuticare/)

[my_auticare](#)





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travancore rehabs
Physiotherapy & Rehabilitation Services

About Us



travancore rehabs, is a leading Physiotherapy & Rehabilitation **service provider** in the 'Venice of the East' - **Alleppey, Kerala, India**. We follows the best practices in Physiotherapy and rehabilitation care, also maintains international protocols and standards. Travancore rehabs has served over many **patients across Kerala** and has helped them recover safely and comfortably in the place they know best that is their **home**.

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Our Journey



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Our Journey



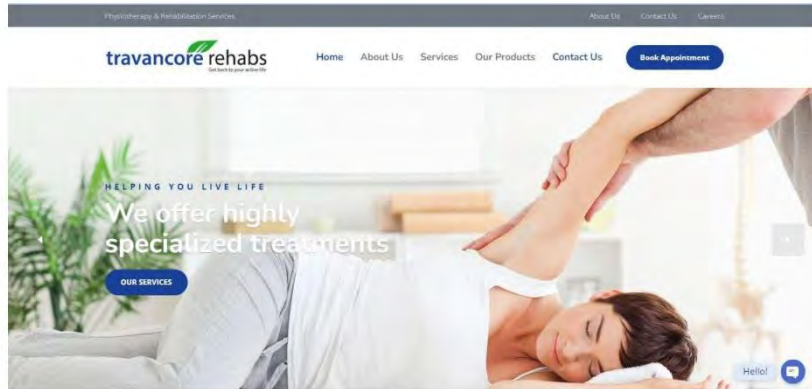
201
2

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Our Journey



2018

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Our Journey



2021



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Our Journey



202
2

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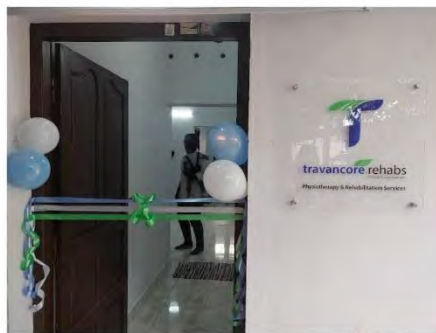


Our Journey



202
3

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Service Area

- Physiotherapy
- Speech Therapy
- Occupational Therapy
- Psychological Counselling
- Diet Consultations

- Custom made Assistive Devices
- Custom made Mobility Aids
- Custom made Wheelchairs
- Special Need Designs
- Ergonomic Interiors & Furniture Designs



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Our Vision



Travancore rehabs will strive to be the best people centric, credible and comprehensive rehab solution provider in world.

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Our Mission



Travancore rehabs will fulfill the vision by creating best service delivery model with people centricity at the core of it. Delivering clinical outcomes for each and every patient every time. Evolving a scalable and self-sustaining business model.

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About Me

Ashique Hyder Ali

Position Held

- CEO & Founder - Travancore Rehabs
- AT Evaluator – Kerala Development & Innovation Strategy Council (K-DISC) (Young Innovators Programme)
- AT Consultant – State Council for Education Research & Training (SCERT)
- Technical Consultant – Kerala Association for Physiotherapists' Co-ordination (KAPC)
- World Health Organization (WHO) Certified Wheelchair Service Trainer
- Design Researcher – Design for Special Needs / Space & Interactive Design
- Crafter – Madhyamam Kudumbam Magazine

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Our Products

ADL Board



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Our Products

Positioning Devices



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Our Products

CP Chair



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CP Chair



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Our Products

Wheelchairs



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Wheelchairs



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Standing Frames



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Our Products

Orthotics & Prosthetics

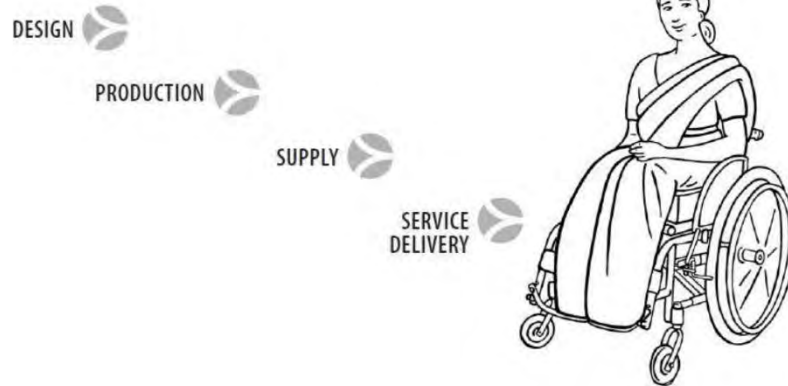


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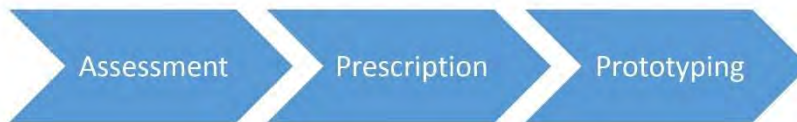
Our Process



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Our Process

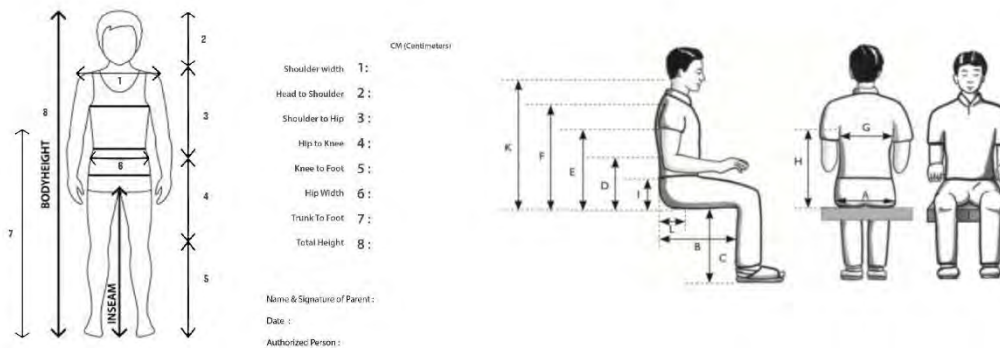


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Tools Assessment



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Prototyping Digital

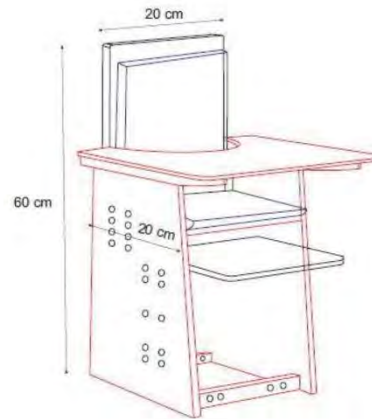
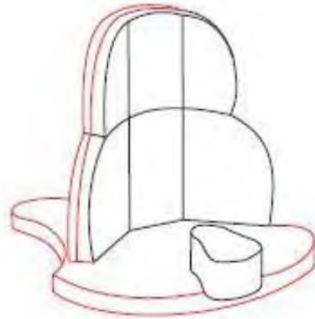
Software – Graphic (Corel Draw) / Modelling (Autocad, 3Ds Max)
MS Paint

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Prototyping - Digital



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Prototyping

Live

Materials

Corrugated Sheet / Plywood / Cartons / Forex Sheet

Tools

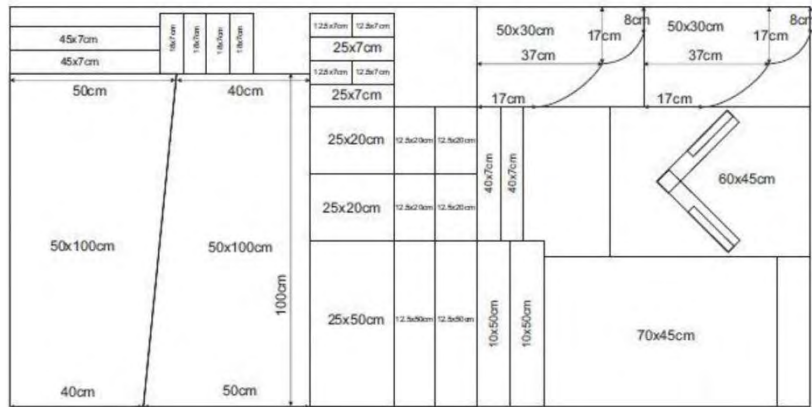
Pen Knife / Markers / Glues/ Nails / Painting Materials/ Measurement Tapes /
if needed Shop bolt

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Prototyping Fabrication Cut List



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Products Delivered



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Tools used in less resourced settings



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Tools used in workshop settings



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@ Fab Lab CST – Bhutan (Phuentsholing)



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Memories of Training Sessions



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Testimonials



vishu pillai

5 reviews

★★★★★ a year ago

I was searching for elbow support walker from last few months but wherever i was searching , i could only find the different one or the expensive one which i cant afford. Recently i got travancore rehabs contact from one of my friend and i called a spoke to Aashik sir , he said the product i was searching for was available with him .. he was very kind and helpful when ever i called very responsive too . He guided me and helped me buy at affordable cost and he delivered me meeting personally with the product . i appreciate the effort he took and finally i got the product which i was searching for long time .. i am very much thankful to Aashik sir and travancore rehab
Keep up the good work :)



Rekha Regu

1 review

★★★★★ a year ago

I was in need of a wheelchair for my husband which should be weightless and fit to my car for easy transport . I had interactions with Aashiq for my queries and he was very kind and helpful to clear my doubts and he suggested the wheelchair for my needs. Today the wheelchair is delivered and it meets my needs. Thank you Aashiq and Travancore rehabs

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Any Questions ?



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“Learning gives Creativity
Creativity leads to thinking
Thinking provides knowledge
Knowledge makes you great.”

Dr. A. P. J. Abdul Kalam

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SESSION BY KMTC- **MR ROHIT PHILIP**, SENIOR PROGRAM CONSULTANT, KERALA MEDICAL TECHNOLOGY CONSORTIUM (KMTC)



KERALA MEDTECH ECOSYSTEM

Kerala ⇒ Global Assistive Technology Hub?!

KMTC // The Mandate

**BRINGING
TOGETHER
stakeholders**

ACADEMIA
RESEARCH
INDUSTRY
STARTUPS
HEALTHCARE
GOVERNMENT



**CATALYSING
INTERACTIONS**

RESEARCH
INNOVATION
DEVELOPMENT
MANUFACTURING
EXPORT



TOP MEDICAL DEVICES HUB

BY 2032: ESTABLISH KERALA AS THE
TOP MEDICAL TECHNOLOGY /
MEDICAL DEVICES HUB IN THE
COUNTRY / TOP 20 GLOBALLY

Medical Devices Industry // KERALA

1+Bn

Approx production of Medical Devices in Kerala (in US \$)

76+

Number of Medium-to-Large size companies in Kerala

40%

Approx share of Global Business, International Quality & Standards

250+

Startups in HealthTech, MedTech, Medical Devices

Medical Devices Industry // KERALA

Kerala MedTech, by Sub-Segment

Others
20.0%

Medical Electronics
35.0%

Rubber-based
45.0%

Rubber-based MedTech

Assistive Technology

Medical Electronics

KMTC // Establishing Kerala's Value Proposition



Dedicated Nodal Agency for MedTech - KMTC



MedTech Ecosystem: **Vibrant, Inclusive & Interactive Ecosystem**



Facilitating Collaboration between Stakeholders / Global & National



The New Industrial Policy: **Incentives for Research & Innovation, High Quality Standards**

KMTC's Interactions on AT // Insights

- Stakeholder Interactions & Events:
 - a. NISH, NIPMR, ICFOSS, IMHANS, ICONS, Startups, NGOs
 - b. GDI Hub, IITMRP, IITD NCAHT, AssisTech Foundation, Social Alpha
 - c. Hackathons, Mentoring, Business Development Connects
- UN / WHO GReAT - Starting Point for understanding industry, market and issues
- RPwD Act 2016 / India's Leap Forward for inclusion but affordable, quality Assistive Tech still distant
- Assistive Technology Categorisation:
 - a. sub-category of Medical Devices vs Non-Medical Assistive Technology
 - b. Horizontal / Disability wise categorisation + Vertical / Functional Utility wise categorisation
- Universal Design / mainstream Assistive Technology for all
- Quality & Standards are Non-Negotiable
- Empowering the Community to step up and innovate to solve their problem / "Nothing Without Us"
- Assistive Technology Policy?

Exploring Assistive Technology // Context of Kerala



Global AT Hub in Kerala // What It Will Take



Support from KMTC

Mentorship
& Guidance

Facilitation
of Funding

Facilitation of
Partnerships

Access to
Infrastructure /
Facilities

Market Access
& Business
Development

Policy
Advocacy &
Incentives

KEMPOWER 2024 // The Premier AT Conference

17 - 19
OCT '24

NISH
TRIVANDRUM

800-1000
DELEGATES



NETWORK & CONNECT

WITH THOUGHT LEADERS, INDUSTRY
EXPERTS, RESEARCHERS, SOCIAL
IMPACT & DEI LEADERS, PERSONS
WITH DISABILITIES AND PEERS

EXPLORE & SHOWCASE

RESEARCH, INNOVATIONS, LATEST
PRODUCTS & SOLUTIONS, INDUSTRY
TRENDS, PARTNERSHIPS &
COLLABORATIONS

KEMPOWER 2024 // The Premier AT Conference

STUDENT DESIGN CHALLENGE:	Encouraging innovation among young minds
PRE-CONFERENCE WORKSHOPS:	Hands-on sessions for specific audiences.
KEYNOTE, PLENARY SESSIONS & PANEL DISCUSSIONS:	Insightful talks by industry leaders over two days.
INDUSTRY & STARTUPS EXHIBITION:	Showcase of the latest innovations and products.