



บริษัท ไออาร์พีซี จำกัด (มหาชน)

IRPC Public Company Limited

IRPC supplied high quality plastics to develop a “Rehabilitation Exoskeleton Robot Suit for Paraplegic Patients”.

IRPC collaborated with Sirindhorn National Medical Rehabilitation Institute (SNMRI), and Sripatum University to develop a “rehabilitation exoskeleton robot suit prototype” to aid paraplegic patients for better living quality by using UHMWPE (Ultra High Molecular Weight Polyethylene) which is a super strong durable lightweight polymer and effectively replaces aluminum and steel parts.

Bangkok, August 30th 2017: President of IRPC Public Company Limited, Mr. Sukrit Surabotsopon said, “The company signed an agreement with SNMRI and Sripatum University to research and develop a medical apparatus, under the “Rehabilitation Exoskeleton Robot Suit for Paraplegic Patients Development” project with the industrial scale planning. The aspiration is to create an opportunity for the disabled people to improve their daily quality of life. At present, the disabled people become an important public health issue in Thailand. The exoskeleton suit is a medical apparatus innovation, which helps solve the aforementioned issue. One of the shortcomings of the existing rehabilitation exoskeleton robot suit is its large driving unit, an aluminum steel material of the excessive 25-kilogram weight which requires high-power battery loading to mobilize. Moreover, its shorter-than-3-hour battery life reduces a possibility for paraplegic patients to use the suit in their real life. This is when the super strong durable lightweight plastic comes in to play an important role to greatly reduce the required battery workload, and in turn prolong the suit’s operating duration. Once the research and development phase is completed and reaches an industrial commercial scale, the robots will undoubtedly be a great life-changing event to all paraplegic patients.”



To succeed in this project, IRPC researched and developed UHMWPE from the ground-up through in-house technology. With its superior characteristics including strong, durable, highly resistant, self-lubricating, as well as lightweight, UHMWPE can definitely replace countless metal structures, making the benefit of lower cost and lengthened operating duration. IRPC intends to research and develop diversified innovative products to further improve the daily quality-of-life and public health. The collaboration among involving parties is a good challenge to learn and share experiences for the betterment of public-health, education and society. While the patients have a chance to use this academic innovative medical apparatus, it is our new stepping stone for further robotic technology research. Moreover, this project reduces a social inequality and reinforces the government’s Thailand 4.0 model as a next step of innovation and technology for better living.



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Director-General of the Department of Medical Services, SNMRI, Dr. Theerapol Topanthanont, M.D., reaffirmed, "The academic service center and rehabilitation medicine service center devoted to develop a rehabilitation exoskeleton robot suit. The exoskeleton robot suit is a safe and user-friendly medical apparatus for the patients in accordance with biomechanics methodology and robotics technology. This innovative robotic technology is aimed to aid paraplegic patients and to improve their mobility, so that they can stand on their own feet and maintain the balance while walking. The suit will not only be beneficial to the paraplegic patients, but also be the answer for the spinal cord injury patients, cerebral palsy child patients and Parkinson's disease patients. This will be an innovation for all."

President of Sripatum University, Dr. Rutchaneeporn Pookayaporn Phukkamarn, said, "The innovative robot prototype for paraplegic patients was derived from the idea and the research of professors and students in Robotics and Automatic control System, Department of Electrical Engineering and Applied Electronics, Faculty of Engineering, Sripatum University. It is a practical yet innovative design which meets the medical apparatus requirement. The team has been very dedicated, and has been recognized through various efforts, such as National First Prize in the Robot and Automation Contest in Manufacturing Process in 2014 or RACMP 2014, the First Prize in the Inventor Competition held by National Research Council of Thailand on Thailand Inventor's Day in 2015, and the international Honorable Mention Award and Leading Innovation Award in Taipei International Invention Show & Techmart 2015 in Taiwan. This innovation was initiated by the members of the team, who wanted to help the paraplegic patients improve their quality of life and become more independent by employing the uncomplicated automated robotic technology. We are proud that the innovative prototype can be researched and developed further so that many people can exploit it and more paraplegic patients will be able to use this innovation in the near future." She also added that the project followed the direction of the Faculty of Engineering, Sripatum University in producing skilled competent human resources as well as academic works beneficial to the society.



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