For Immediate Release: November 11, 2024

Press Release

IIT (ISM) team of faculty members, research scholars and students receive Gandhian Young Technology Innovation (GYTI) Appreciation-2023 for developing EEG Signal Controlled Pneumatic Medical Bed for Patients with Severe Motor Disabilities.

A team of four students of the Department of Mechanical Engineering, IIT (ISM) Dhanbad, led by Dr. Zafar Alam, Assistant Professor, which developed an EEG-Signal-Controlled Pneumatic Medical Bed for Patients with Severe Motor Disabilities has been recently awarded Gandhian Young Technological Innovation (GYTI) Appreciation-2023.

The award function organized by the Society for Research and Initiatives for Sustainable Technologies and Institutions at India International Centre, New Delhi, witnessed the presence of Prof. Ajay Kumar Sood, Principal Scientific Advisor, Government of India; RA Mashelkar, Former Director General CSIR; Renu Swarup, Former Secretary, Department of Biotechnology; Prof. TG Sitharaman, Chairman AICTE; Prof. PVM Rao, Dean, Alumni Relations, IIT Delhi; and Prof. Anil Kumar Gupta, Founder Honey Bee Network.

The team comprising of Ashish Siddharth, a research scholar, and other students, including Yalla Mark Vishal, Inampudi Sai Amith, and Manmohan Labh, which received the award, along with their guide, Prof. Zafar Alam, developed the device at a cost of Rs 2 lakh received through the institute innovation hub, NVCTI, with the aim of helping paralytic/severely affected patients control their medical bed by their brain through an electroencephalography device.

The device developed between 2021-22 will help to ensure efficient medical governance by reducing the nursing loads for patients at health centers and hospitals.

Prof. Alam said, “The brain sends the signal in the human body in the form of small impulses of currents and spikes, which are also known as electroencephalography signals, through the network of neurons and nervous systems.”.

“A study of these signals has been carried out to analyze a person’s thoughts, and then, with the aid of machine learning, a trained model was obtained to recognize whether the patient wants to lift the bed up or down,” elaborated Prof. Alam.

“The developed model controls a pneumatic actuated medical bed to the desired position,” said Ashish Siddharth, the research scholar, adding that these pneumatic actuators use air as a fluid medium, and due to its attribute of compressibility, a cushioning effect is generated that creates an additional advantage to the system.

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