

Name of the Technology/Product: “VIBHRA: Virtual Intelligent Techniques for Rehabilitation of Persons with Motor Disability”

Laboratory Name	CSIR-Central Scientific Instruments Organisation, Chandigarh
Brief Profile of Technology/Product	VIHBRA is a virtual intelligent platform for motor rehabilitation of persons with disabilities. It combines experience from virtual reality and knowledge from machine intelligence to enhance neural reorganization that optimize the physical rehabilitation outcomes in individuals with disability. It provides stimulating sensory feedback to promote motor learning and encompasses tools that help to understand the biology of disability. The system integrates inexpensive devices like Microsoft Kinect and Wii Balance Board to improve balance and neuromuscular functions. Quantification of motor disability is done through presenting the individuals with situations/tasks that require use of groups of muscles and body parts like an augmented rehabilitation measure such as Virtual Function Reach Test.
Returns/Benefits	<p>VIHBRA Benefits</p> <p>a) Real-time visual feedback of the executed movements allows the persons with disabilities to perceive a picture of his movement projected on the screen in real-time and correct compensatory postural adjustment and movement learning.</p> <p>b) Visual response combined with verbal instructions by the system (zero physiotherapist assistance), can ease the learning of body postures with better biomechanical arrangement while executing the tasks and activities.</p> <p>c) The therapy system provides intense, continuous and repetitive training to the individuals with disability, simultaneously bringing maximum engagement through fun, animated virtual environments.</p> <p>d) The system incorporates a novel virtual functional reach test, modified functional reach test and other clinical measures that makes daily quantification of improvement lot easier.</p> <p>e) The system also continuously records the performance of the users and report it when and wherever required over cloud.</p>
Validation Level	Prototype developed and installed at two hospital Pilot Scale
IPR Status [also indicating the status of the patent (if any) in 2015]	Patent applied
End product price (if not available, estimated price)	Upto 1.0 Lakh/-
Technology/Product Collaborator	None, in-house development

<p>Relevance of Technology in present times</p>	<p>The virtual rehabilitation system developed has been used on patients with Spinal Cord Injury in an ethically approved clinical trial. The rehabilitation system includes therapy exercises for standing balance, sitting balance, range of motion, and strengthening exercises for both upper and lower limb. The developed system was successfully able to engage the patients in a multidimensional, multisensory virtual environment that appear to be and feel comparable to real events. This brought motivation and voluntary engagement in the patients to perform rehabilitation through the developed system.</p>
<p>Similar technology/product developed</p>	<p>Available in international market.</p>
<p>Picture of the technology/product (if any, with good resolution)</p>	 <p>The image shows a black rolling suitcase open on a light-colored tiled floor. Inside the suitcase, a silver laptop is visible with a blue circular logo on its lid. To the right of the laptop is a black tablet or folder with a colorful logo and the text 'YHBLA' below it. The suitcase is partially filled with other items, including a white box with a blue logo on top.</p>