

iManus™

Portable Hand Tele-Rehabilitation Platform



TACTILE ROBOTICS
Feel the Intangible



Sensorized Glove and the mobile app

TACTILE ROBOTICS

Tactile Robotics is a **Canadian technology development** and consulting company in the field of Industry 4.0.

We employ haptic, robotics, AI, IoT, and instrumentation technologies to develop **sensory-based instruments** for:

- medicine (IoMT)
- dentistry (IoDT)
- physiotherapy
- rehabilitation therapy (IoRT)
- engineering, industrial IoT (IIoT)

Any-where based therapy

- Limitless practice at home with respect to patients' comfort
- Can be use at home, hospital, or therapist's location
- Pre-recorded practice can be provided for the patient



iManus™

Portable Hand Tele-Rehabilitation Platform (Patents Pending)

- iManus is a comprehensive, portable and easy-to-use, platform which provides a wide range of supervised rehabilitation practice for those with upper limb disabilities caused by neurological conditions, heart attack, stroke, or similar medical problems. In other word, iManus is a Portable Hand Tele-Rehabilitation Platform which enables an effective, continuous and inexpensive relationship between the patient and the therapist to provide the best conditions for the patient to get back to their normal capabilities as soon and as much as possible.



- Patient-specific evaluation with respect to his/her own healthy hand
- No need for transportation to the therapist place
- Reduced transportation cost and more time saving
- Reduced exposure to potentially contaminated environments



Pandemic Impact

- The COVID-19 pandemic caused many sectors to reduce in-person contact between individuals and instead use remote communication technology. With increased robot use replacing in-person interventions, ethical considerations arise. The benefits of robotic technology must be weighed against the possibility of harm to humans. As such, some health care services have switched to a remote care model to reduce the spread of COVID-19. Remote hand rehabilitation of stroke patients is possible with iManus. With the aid of a portable smart glove technology, patients practice rehabilitative hand movements which are analyzed remotely, and instantaneous feedback are provided accordingly. The therapist monitors their patient's progress remotely and designs individualized programs. This technology benefits humanity by improving access to care for patients globally.



Benefits for Patients

- Limitless access to the therapeutic platform
- Ease of access and piece of mind in performing the therapeutic assigned tasks
- Eliminating the transportation costs
- Eliminating the risk of exposure to any viral contaminated environment
- Self assessment along with professional grading all available in the mobile app
- Ease of communicating with the therapist at any time and location

Benefits for Clinics

- A wise investment on a technology-based therapeutic device
- Quantitative assessment of the patient progress using different key performance indicators (KPIs)
- Efficient task assignment for patients using pre-recorded tasks
- Considerable cost reduction by replacing the online and in-person treatments
- Managing multiple patients using the therapist interface
- Freedom of the therapist to perform his/her duties from home



Key Performance Indicators (KPIs)

KPI CATEGORY	ASSESSMENT PURPOSE
Hand movement angulation - Axial range of motion (ROM) of the wrist - Side-to-side ROM of the wrist - Back-to-front ROM of each finger/joint - Overall movement skill	Assessment of the capability in performing assigned tasks in terms of movement 17 KPIs for patient's each hand
Hand movement smoothness - Axial speed of the wrist - Side-to-side speed of the wrist - Back-to-front speed of each finger/joint - Overall smoothness skill	Assessment of the smoothness factor patient's performance 17 KPIs for patient's each hand
Hand movement steadiness - Longitudinal jerk index of the wrist - Lateral jerk index of the wrist - Vertical jerk index of each finger/joint Spatial smoothness skill	Assessment of the steadiness factor patient's performance 17 KPIs for patient's each hand
Task completion time	1 KPI for each task
Interruption index	1 KPI for each task

Our Proud Collaborators and Funders



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