



# IIT MADRAS

Indian Institute of Technology Madras

Technology Transfer Office  
TTO - IPM Cell



## Industrial Consultancy & Sponsored Research (IC&SR)

### Many-in-one wearable virtual musical instruments IITM Technology Available for Licensing

#### PROBLEM STATEMENT

- Conventional **bulky size of actual instruments** (especially drums, tabla etc.) makes it **difficult to transport** them from one place to another.
- One main goal of this invention is to create virtual instruments which are easy to carry from place to place and still, not compromise on the music part of the instrument.
- Further, for any musical event, there are one or more issues to arrange all the **expensive musical instruments** which are costly and required high transportation cost.
- Hence, there is a need to address the issues.

#### INTELLECTUAL PROPERTY

IITM IDF Ref. 1563; IN Patent No: 481647

#### TECHNOLOGY CATEGORY/ MARKET

**Technology:** virtual musical instruments;  
**Industry & Application:** Music, Entertainment, Virtual reality (VR);  
**Market:** The global virtual musical instrument market is projected to grow at a **CAGR of 9%** during **2024-2032**.

#### TRL (TECHNOLOGY READINESS LEVEL)

TRL-4, Technology validated in lab.

#### TECHNOLOGY

- Present invention describes a **system** for converting hand movement to sound of a preferred musical instrument.
- Said system comprising of a **set of wearable hand gloves**, a **plurality of motion sensors** wired onto the gloves; a **microcontroller** to receive inputs from a plurality of sensors & transmit to a computing device, a computer readable programme on the computing device adapted to synthesis the sound of a preferred instrument.

- Further, the system includes **flex sensors**, **6 degrees** of freedom imu sensor, **3-axis** magnetometer & others.
- Facilitates to play **table, drums, flute** etc. using virtual reality.

#### KEY FEATURES / VALUE PROPOSITION

##### ❖ Technical Perspective:

- Present invention facilitates wearable gloves which can be used to play **multiple musical instruments** (tabla, flute, bongo & drums).
- The computer shall be running a **python script** which generates keyboard events to **play the sounds on a selected few music editing software**.
- Instant invention is using a **plurality of sensors** on gloves wherein said sensors comprising **IMU sensors, magnetometers, flexible sensors, pressure sensors, etc.**

##### ❖ User Perspective:

- Main objective of the present invention is to provide an **experience** of playing **actual musical instrument** as much as possible in **cost-effective** manner.
- Facilitates an easily **portable** musical instrument without necessitating a specialized setup of light sources.

#### RESEARCH LAB

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