



TECH TO BUSINESS

CONTACT: [ipm@innovatecalgary.com](mailto:ipm@innovatecalgary.com) • (403) 284-6400

## Wearable Electronic Devices

Tech ID# 524.33

### Background

This technology is a wearable device that uses novel algorithms for interacting with video games; inertial sensors detect player's foot movement and translate them into actions in video games. This inertial sensor-based game play system presents a new step detection method to capture the human step motion and coordinate it to the game control. With this device mounted on the human foot, a person is capable of stepping in different directions to control the player presented in games. This is achieved by analyzing the human gait motion and using a sliding window based detection method to find the exact step-up time epoch followed by a decision tree classifier to point out the foot moving direction.

One of the advantage of the proposed system is that it extends the current electronic wearable devices to the game control field beyond monitoring vitals; Also, Kinetic games no longer need to be limited to a confined space (i.e. living room) and played by the specific game box (i.e. XBOX, Wii) anymore, but instead can be played almost anywhere or anytime with our smartphones or tablets by integrating wireless technology. Last but not least, this system provides a more interactive and subsequently higher-fidelity user experience, and it introduces the possibility to build a low-cost, portable, wearable, real time exercising and entertainment platform, that people can use to perform virtual sports or exercise without environmental constrains, making this solution more convenient to use and beneficial for their health.

### Areas of Application

- Gaming
- Human Computer Interaction
- Rehabilitation applications
- Entertainment/Digital Signage

### Competitive Advantages

- High step motion detection accuracy
- Less lag – real time applicability
- Flexible and Robust – compatible with different shoe styles and sensor placement

# TECHNOLOGY



## Stage of Development

- The novel proposed system has been tested with Subway Surfers game and a similar game developed by the inventors with the Unity Game engine, more than 10 testers have been involved in the system testing. The practical results demonstrate the validation and robustness of this novel technology and the testers expressed an interesting and excellent user experience.

## Intellectual Property Status

- Patent filed