Abstract
Available methods of moving within a game or application are unsatisfactory. An ideal method of locomotion would enable the user to maneuver naturally through virtual buildings, streets, or towns without hinderance. HoboLoco, inspired by the popular Hoverboard, provides the same maneuverability and extends the virtual world without walls, teleporting, or harnesses.

Simulation Results
Through the process of working on the project, it has been proved that this newly invented mode of locomotion is entirely feasible. HoboLoco hoverboards will be a strong contender in the marketplace because it fills a void in the VR world. The future is prosperous and limitless for HoboLoco; it is a clever concept that will reach wide acceptance to a wide variety of consumers.

Architecture

Objective Performance Metrics
- **Sensors** – load cells integrated into Arduino and reading correctly into Unity
- **Bluetooth®** – wireless module communicating seamlessly with simulation
- **Unity** – a 3D VR demonstrating hoverboard controls
- **Arduino** – controller assembled using sensors, potentiometers, Bluetooth®, and haptic feedback

Prototype Results
A standing prototype consisting of foot pads and sensors.

Impact
HoboLoco is a low cost, wirelessly enabled computer input device that is operated like a hoverboard. To guide an avatar or vehicle in Virtual Reality, the user stands on two foot pads and slightly flexes one or both feet. Sensors in the device communicate with the application through Bluetooth® enabling the user to navigate a virtual environment. HoboLoco is a “game changer” for Virtual Reality developers and users.

Summary
Through the process of working on the project, it has been proved that this newly invented mode of locomotion is entirely feasible. HoboLoco hoverboards will be a strong contender in the marketplace because it fills a void in the VR world. The future is prosperous and limitless for HoboLoco; it is a clever concept that will reach wide acceptance to a wide variety of consumers.