Swirlesque: A New Form of Gesture Based Human Computer Interaction

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While computers become more powerful every year, the means of interacting with them have not evolved greatly since the beginning - keyboards, mice, and lately touch screens. Intelligent devices are becoming ubiquitous in our lives as the Internet of Things takes off, however there is no way of controlling these devices without reaching for an input device and searching through menus. To investigate a more practical way of controlling internet-connected devices a system branded Swirlesque was developed. It consists of an intelligent glove that can recognize hand gestures and a companion smartphone app to connect with other devices. A microcontroller on the glove applies an algorithm to recognize gestures in motion data provided by an accelerometer, and then communicates this information to the companion smartphone app via Bluetooth. As the smartphone has a persistent Internet connection, hand gestures can be configured to control almost any electrical device imaginable. Applications that have been demonstrated to test the practicality of the system include changing the TV channel without a remote, controlling music playback on a mobile device, navigating a PowerPoint presentation and turning on household devices such as lights. Controlling these systems was successful, and the possible applications are limitless, stretching from providing an intuitive interface for wearable technology to assisting people with a physical disability. Due to the practical nature and extensive applications the device offers, it has the potential to revolutionize how people interact with technology around them.

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