ABSTRACT

An increasingly impactful part of everyday life is how we interact with our technological Devices, most notably our computers. Much of the ingenuity stemming from human-computerinteraction research focuses only on improving current mainstream devices out there today. Only a few modes of Human-Computer interaction exist today: namely through keyboards, mouses, touch screens, and other handheld helper devices. Each of these devices has been confronted with their own limitations when adapting to more powerful and versatile hardware in computers.

A commonality between the issues of these devices are this: providing an intuitive mode of human-computer interaction cheaply without the additive of extra devices. With that said, we felt there were ways we could build an intuitive gesture-control mode of human-controlinteraction without the need to necessarily build another device. When tackling this problem of creating a new mode of human-computer interaction we knew we could utilize a combination of built-in functions that is typically provided in most computer designs. Specifically we have exploited the built-in webcam that has become a standard feature in most computers. This feature provides us a way to track and respond user hand-free movements and gestures.

Using a combination object detection and recognition, the following project successfully builds a computationally inexpensive static hand gesture recognition system using a simple RGB webcam - creating a truly more natural form of human-computer interaction.

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