

Project Goal

Our project is to create a system that uses eye tracking technology to take the user's eye as an input to aim a flashlight at whatever the user is **looking at.** iTrack is a device primarily used to help disabled people, but can also be applicable to anyone whose hands are occupied.

Progress Made

Most of the progress made this quarter involves the software side of iTrack. We are currently able to use openCV on the RPI with a webcam to detect and track the eyes on our face. By the end of the quarter, we will be able to reliably detect movement of the eye with our eye detection module. We also have decided on the type of parts we will need, such as the servos and motors that we plan on using for the hardware component of the project.

Milestones

Software: Eye Tracking, Integration with Hardware Hardware: Prototype Design

iTrack

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Challenges

As of now, we are facing challenges with the physical design of the system. We plan on having the flashlight and Raspberry Pi on some sort of headgear, but are still thinking of how to mount the actual light and eye tracking module with accompanying battery and other parts. In trying not to waste power, we are also being considerate of implementing an efficient design and utilizing an appropriate power source. We expect that by porting the code to the Raspberry Pi, there will be significant impacts to performance compared to running the code on our computers. Therefore, it will be a challenge to make sure that we use the processing power on the Raspberry Pi efficiently.

For next quarter, we will work more with our mentor on the design of iTrack to see if any improvements or corrections can be made to our designs, code, and algorithms. Since the focus of fall quarter was completing the code and software aspect of the project, winter quarter will be used for completing headgear and hardware. We will need to work on keeping the whole system compact since it is designed to be worn, particularly on the user's head.

Front: Shows hat camera and servomotors on shoulder





Future Work

Design Concept



Back: Shows wire and powerbank location

We are currently thinking of a mountable device similar to law enforcement body cameras.

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