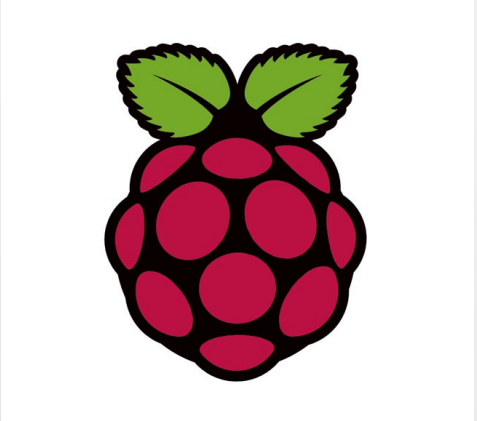
Part 5: Continuing to Continue

LEAP MOTION



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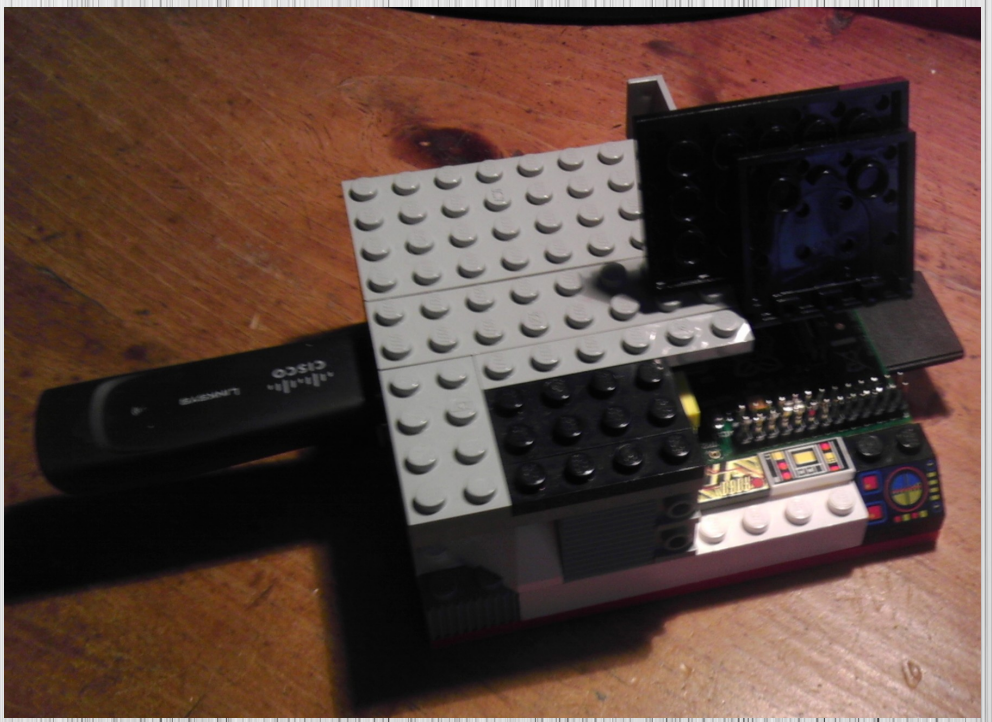
Tragedy Strikes

- The C6 capacitor on the Raspberry Pi is susceptible to breakage with very little force applied.
- I found this out the hard way.
- After bringing my Pi to class, I realized the capacitor had broken off and was rolling around in my toolbox.
- Heartbroken, I took to the internet to find a solution to my potentially $35 dollar mishap.
- It turns out this is a very common occurrence and is, in fact, not a serious issue.
- The C6 capacitor is in place to act as a filter from the power source to the board.
- Most (if not all) power sources have built-in measures to accomplish the same thing the C6 capacitor is there for.

Redemption and Protection

- Rather than simply live with a broken Pi in the naïve belief that nothing could go wrong because someone on the internet said so, I set out to repair the problem myself.
- Using my admittedly weak soldering skills, I was able to reattach the capacitor. I then decided to ensure nothing like this could happen again. So I got out my Legos.
- Using random bits and pieces from my decades-old collection of Legos, I built a stylish and functional case for my Raspberry Pi.



RGB LEDs

- My original intention for this project was to control an RGB LED that could change colors.
- I put in an order and received a pack of 12 LEDs and set about working with them.
- They are quite simple to work with and required minimal changes to my code for standard LEDs.
- An RGB LED has 4 leads, 1 for each color(red, green, and blue) and 1 for the common anode. Each color requires a different voltage to operate, so I utilized three resistors to control said voltage.

JSCh SSH Protocol

- Throughout the process of working on this project, I've been looking for an easy way to SSH into my Pi from a Java program.
- For awhile, it was a grim process, with the process becoming more and more convoluted by the day.
- I finally found a Java package called JSCh which allows for easy SSH access through Java.
- It works very similarly to Putty, and with a few modifications to the code, I was able to automatically log into my Pi through SSH from my Java program.
- This allows the SSH protocol to seamlessly integrate with my Leap controller program.

Bringing it All Together

- I've written a C program on the Pi (using wiringPi) that has complete control over an RGB LED. The functions include turning the LED on and off, changing between 1 of about 6 colors, and dimming the LED(for every color) using pulse width modulation.
- On the PC side, I've got a Java program that automatically SSH's into my Pi and can accept gestures from the Leap Motion.
- The next - and hopefully final – step is to use gestures to send customized outputs to the Pi running my C program.