Smart Glove Control System

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General Idea

Raspberry Pi
Edge device

Sensor data

Control messages

Sensors on finger joints

10 GoF Sensor on Hand

Low power microcontroller on the arm

LED device 1   LED device 2   LED device 3
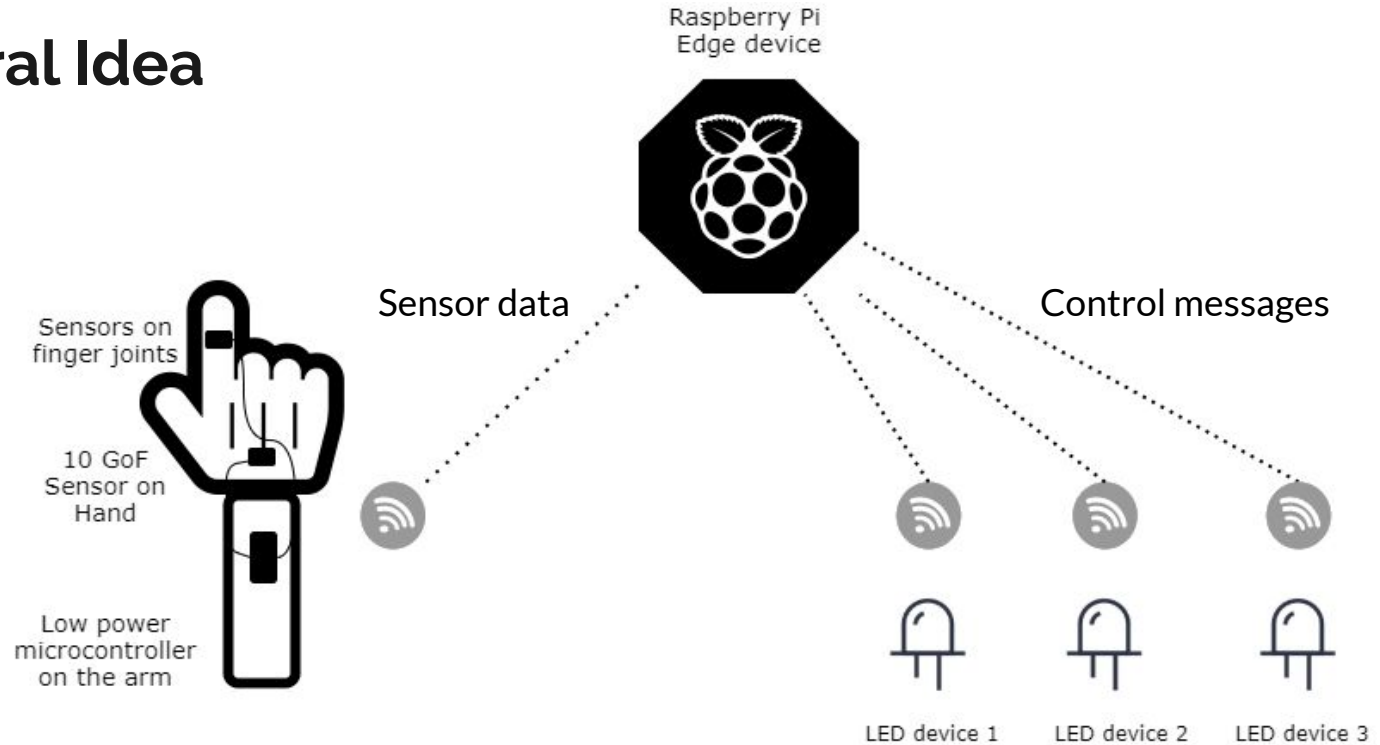
What we have done

Implemented mock IoT LED devices which can receive commands via MQTT.

3D printed parts for mounting the flex sensors. Decided to sew them onto the glove instead.
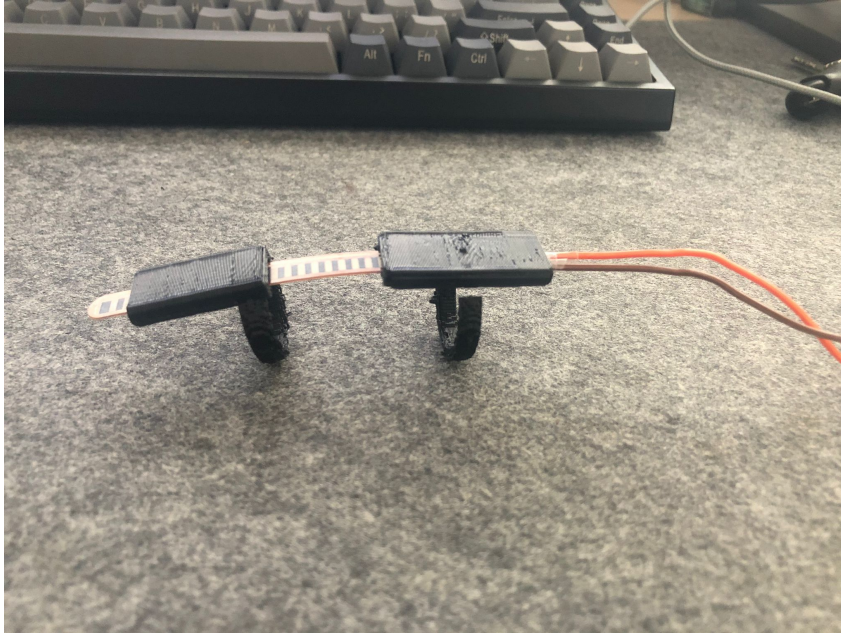
Mounted the IMU to the glove internally, to avoid cutting the pins and doing solder work.

Cleaned up the code to better reflect the data flow we have in mind.

Implemented basic hard coded gestures for the demo.

Tested latency, fixed MQTT problems.

3D Printed Parts

Why we won't use 3D Printed Parts
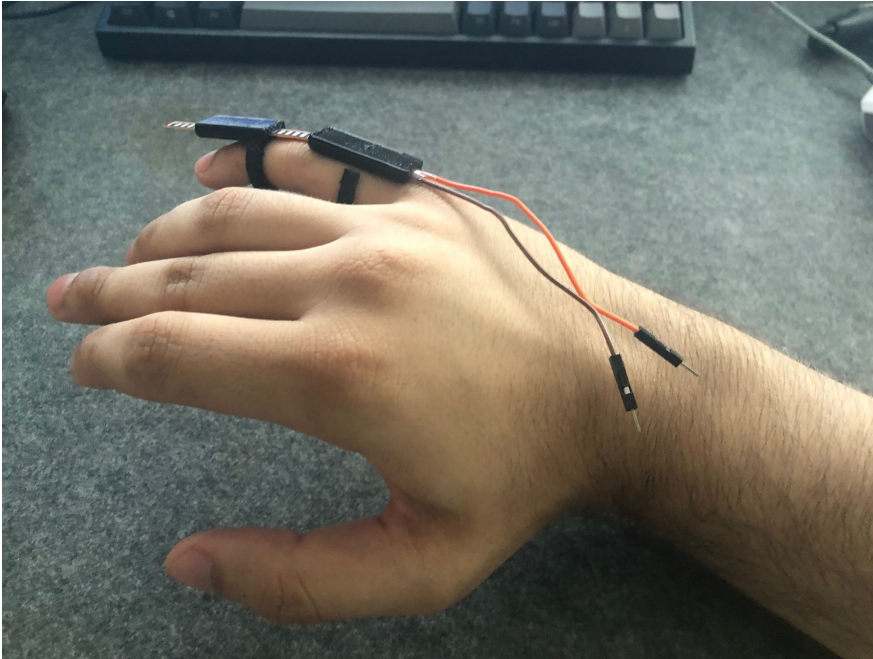

Most prints failed halfway.

Only one "successful" print after 9 tries.

Makes wearing the glove really complicated.

Uncomfortable to wear, restricts movement.

Harder to bend compared to our current design.

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Live demo

Future work

Add a machine learning unit to process the commands coming from the glove

Generalize the method to add new objects to the system

Add other devices to control

Thank you!

Questions?