Team Name: sdmay24-27
Team Members:

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Report Period: Sept 25-Oct 8

Summary of Progress in this Period

Current Progress:

We have initiated the testing phase of our project.
Successfully integrated a Raspberry Pi to control haptic feedback motors.
Established a testing rig to evaluate the prediction accuracy of haptic feedback.
Conducted different testing to test the haptic feedback motor capabilities. Demonstrated our results to the professor and created a working plan moving forward with our current haptic feedback module.

Exploration and Decisions:

Our team thoroughly explored various methods for depth measurements and evaluated diverse processing boards.
We considered multiple technologies including:
- Lidar cameras, notably the one within the iPhone.
- Alternative imaging technologies like stereo cameras.
- Various boards, with a significant focus on the Raspberry Pi 4.
- Other haptic feedback systems

Based on our research, we have identified and solidified the devices and methodologies we intend to utilize moving forward.
Upcoming Acquisitions:

Purchase orders have been placed for:

The Kinect adapter.
The Adafruit PWM/Servo hat, which facilitates the control of up to 16 haptic feedback motors through software pulse width modulation.
An adequate power cord to allow for 16 haptic feedback motors along with a stereo camera.

Pending Issues

We have been more successful in predicting vibration intensity though the testing is still limited due to the

amount of haptic feedback motors we are able to control currently.
We have received the Kinect to get Depth measurements so we can start using opencv within the raspberry pi to receive depth measurements. The Kinect has an issue because the wire connection is not a USB.

Plans for Upcoming Reporting Period

We are going to use the kinect adapter to process depth data from the kinect and get experimental results for testing purposes.
We are planning on soldering the cables to the haptic feedback motors for better mobility in using the haptic feedback motors
We are going to connect the Adafruit hat and create a new script such that we are able to control 16 different motors at the same time/

Our plan for our Testing:
- Frequency: Being able to see how fast we are able to detect the changes how many times persecond are able to reliably detect changes.
- Accuracy: Being able to accurately assess which motors exhibited a change in vibration intensity and localization of the specific motors.
- Testing different cloths and setups for motors to figure out our plan of action on the wearable device for haptic feedback motors.
- Getting the kinect to work with opencv in the Raspberry pi
- Determining the Battery for our use cases and setting an order.
- Finalizing our decision on a stereoscopic camera to be used and completing that order.