**WEEKLY REPORT and MEETING AGENDA**

Report #: 6 Project Name: GUIDE

Date: 11/05/2024 Prepared by: Diana Canchola

**Agenda for the meeting**

1. Hardware Progress
2. Software Progress
3. 3D Modeling Progress

**Overall accomplishments since last meeting**

1. Soldered Haptic Sensors
2. Tested Haptic Sensor Buzz Duration
3. Debug Depth Camera Packet Data
4. Depth Camera Python Script
5. 3D Printed New Handle
6. Glued the First Handle for Walking Stick Test
7. 3D Model of Electronic Housing

**Tasks completed by each team member since last meeting**

| Task description | Assigned to | Completed? |
| --- | --- | --- |
| Combine LiDAR data operating on a single python script with the Depth Camera | Jack Couture Noah Kilpatrick | no |
| Brainstorm AI/ML solutions for utilizing both sensors | Jack Couture Diana Canchola | yes |
| Create plan for wiring components on the 3D prints and walking stick | Jack Letsinger Ryan Wu | no |
| Refine 3D model for electronic housing after team and professor feedback | Alyan Tharani | in progress |
| Refine handle to attach to walking stick | Alyan Tharani | yes |

**Plans for next period**

1. Begin development of code to aggregate both LiDAR and depth camera
2. Use depth camera for object recognition
3. Brainstorm AI/ML solutions to verify detection using the two sensors
4. Print electronic housing 3D design
5. Integrate breadboard prototype into the walking stick

**Task assignment per team member (to be completed before the next meeting)**

| Task description | Assigned to |
| --- | --- |
| Combine LiDAR data operating on a single python script with the Depth Camera | Jack Couture Noah Kilpatrick |
| Brainstorm AI/ML solutions for utilizing both sensors | Jack Couture Diana Canchola |
| Add sensors to 3D printed handle and sensor housing | Jack Letsinger Ryan Wu |
| Refine 3D models based on team and professor feedback | Alyan Tharani |

**Project management status**

1. Hardware On-Track
   1. Soldered Haptic Sensors
   2. CAD model is making good progress and second iteration is complete for GUIDEs handle
   3. Created first iteration of 3D printed electronic housing
      1. Attached to angle adjuster
      2. LiDAR below the depth camera
      3. Screw holes for the electronic sensors
2. Software Focus
   1. Working towards the software prototype
   2. Depth camera data has been interpreted to extract distance measurement

**Minutes from previous meeting**

Meeting 10/29/2024 Notes

* Weekly report meeting with the professor
  + Add/Update requirements on CDR based on added/deleted components in the final design
    - Update the weight
    - Update the response times
    - Add ranges
  + Update the system level description
    - Add a slide after the system level design that goes in depth
      * Include all components in final design
  + Print out handle and the electronic housing
    - Add requirements for angle adjustment using the GoPro angle adjuster
      * Does this inhibit range?
      * Does placement matter?
* Prepare for 3D printed parts on Thursday
  + Purchase foam for gaps and seals to test on the old handle
* Finish the depth camera python code to decode all bytes especially the distance data
  + Find bytes for distance, temperature

Meeting10/31/2024 Notes

* Testing Depth Camera script
  + Bytes of data may be different than first thought, this messes up the decoding portion of the code
* Soldering Haptic Sensors
  + Connections for haptic sensors are weak and need to be solid in order to improve their longevity and avoid disconnections.
  + Tested haptic sensors for buzz duration

Weights

* Walking Stick: 0.5lb
* Handle:
* Electronic Housing:
* Pico 2: 0.13lb
* Battery: 0.26lb
* Buck Converter: 0.006lb
* LiDAR: 0.011
* Depth Camera: 0.022
* 4 Haptic Sensors: Negligible
* Angle Adjuster: 0.19lb
* 3D Prints: 0.21

Total: 1.33lb