**WEEKLY REPORT and MEETING AGENDA**

Report #: 8 Project Name: GUIDE

Date: 11/19/2024 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 and testes all hardware components for final prototype
2. Detailed pinout for final Pico soldering complete
3. LiDAR and Depth Camera working together to average distance
4. 3D Model is finalized

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

| Task description | Assigned to | Completed? |
| --- | --- | --- |
| Depth Camera and LiDAR contribute to the average distance for GUIDE | Jack Couture Noah Kilpatrick | yes |
| Brainstorm AI/ML solutions for utilizing both sensors | Jack Couture Diana Canchola | yes |
| Solder all components for final prototype directly to the Pico microcontroller | Jack Letsinger Ryan Wu | yes |
| Refine 3D model for electronic housing after team and professor feedback | Alyan Tharani | yes |
| Refine handle to attach to walking stick and have a better grip | Alyan Tharani | yes |

**Plans for next period**

1. Continue testing the software and refine both sensors
2. Attach all 3D printed parts onto the walking stick
3. Add last minute touches such as reflective tape

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

| Task description | Assigned to |
| --- | --- |
| Depth Camera Object Recognition | Jack Couture Noah Kilpatrick |
| Continue testing and refine the average distance code | Jack Couture Jack Letsinger |
| Add sensors to 3D printed handle and sensor housing | Jack Letsinger Ryan Wu |
| Refine 3D printed parts and complete final 15 hr print | Alyan Tharani |
| Complete Capstone Expo poster | Diana Canchola |

**Project management status**

1. Hardware On-Track
   1. Soldered all components for final integration
   2. Created foam mold of handle so walking stick fits
   3. Printed the final iteration of the sensor attachment
      1. Thicker extrusion
      2. Two parts are connected together without a dowel between
2. Software Focus
   1. Depth camera data has been interpreted and integrated with the LiDAR
      1. Working towards creating a joint distance measurement
      2. Working towards a “smarter” algorithm
   2. Code was tested with both sensors connected and a different buzzer vibration depending on the sensor

**Minutes from previous meeting**

Meeting 11/12/2024 Notes

* Brainstorming ways to attach handle to the halves and the walking stick
  + We are going to purchase the velcro straps to stick both together
  + Bring saran wrap
  + Bring loctite foam
* Changing 3D model for better fitting handle
  + Decreasing the extrusion between the two grips
* Brainstorming how to fit all the electronics into the handle
  + Where to place all the sensors particularly the battery
    - Influences the size of the wires
    - Influences the pins used on the Pico

Meeting 11/14/2024 Notes

* Reprinted the handle for better fit without compromising the capacity for the components
  + Slightly better fit
  + Electronic sensor housing is more stable
    - Extrusion on connection with angle adjuster
    - Thicker print
  + Final 15 hour print has been finalized
    - Changes include one haptic sensor insert is off
    - Sensor adjuster can be merged into one instead of having a dowel in the middle of the two pieces
* Handle integration
  + Soldered final Pico microcontroller to haptic sensors, buck converter, and wires for the LiDAR and Depth Camera.
* Software for combining LiDAR distances and Depth Camera distances to create an average distance measurement

Meeting 11/18/2024 Notes

* GUIDE handle was put together with the power button, Pico microcontroller, buck converter, and vibration motors.
* Sensor attachment was printed with both parts connected, this does not require the dowel in between.
* LiDAR and Depth Camera wires were extended to reach from handle to the angle adjuster.
* Steps left to complete:
  + Fasten the handle together
  + Drill into the walking stick to pass LiDAR and Depth Camera wires through and into the sensor attachment.