

E2.08 – Artist Robot

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Sponsors: Dr. Stephen Awoniyi, Jeff Stevens



Overview

The Artist Robot is a fully autonomous bot that is capable of taking a photograph and drawing that image on an 8.5” x 11” piece of paper, utilizing image processing, file conversion, and inverse kinematics.

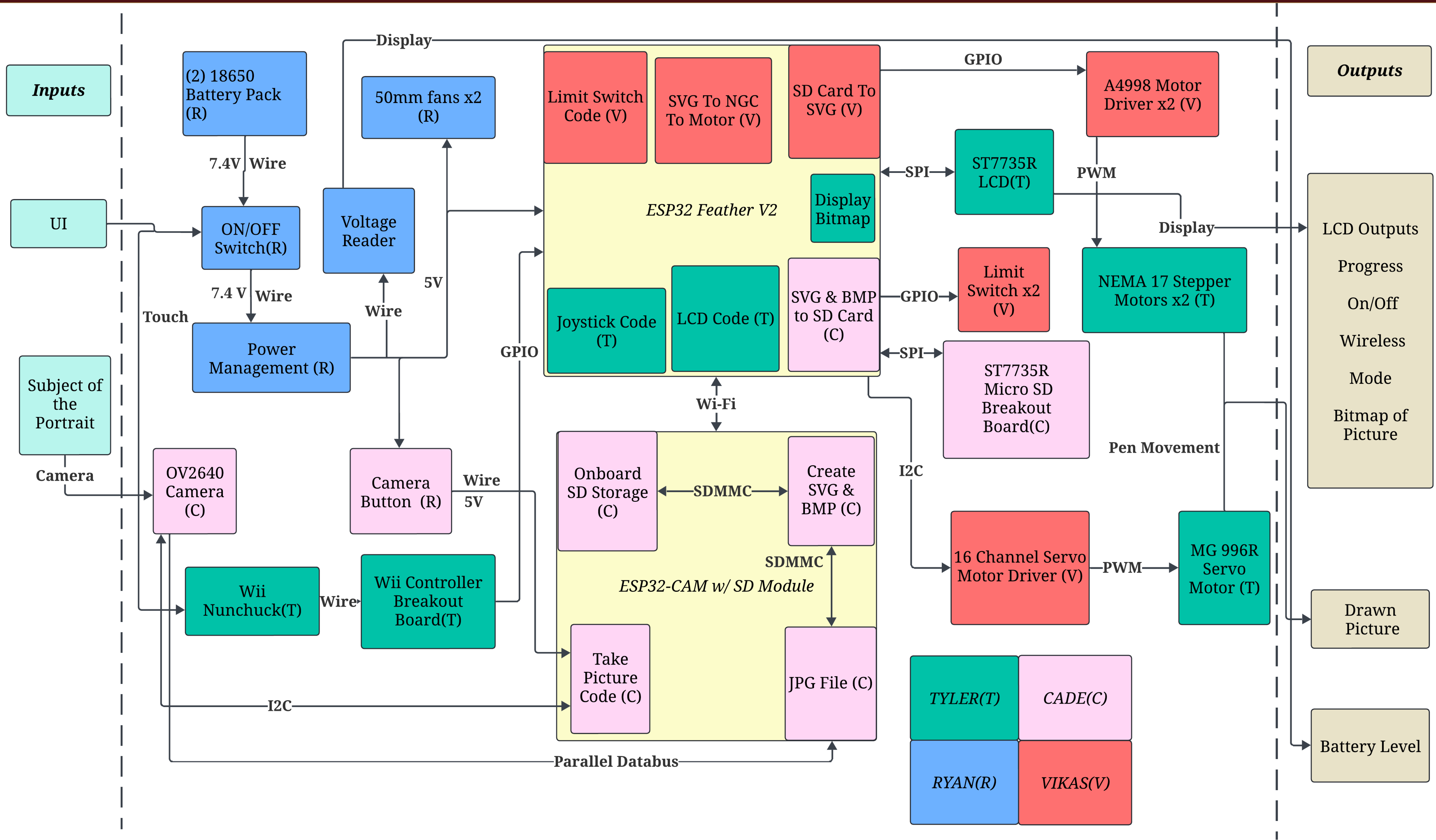
Requirements

- Must have an interactive mode.
- Drawn portrait pictures in under 10 minutes.
- File conversion from JPG to SVG.
- Basic shapes drawn in 90s.
- Rechargeable battery with runtime of 90 minutes.
- LCD with indicators displaying POWER ON, LOW-BATTERY, and WIRELESS ON/OFF.
- Capable of on-board processing.
- Budget of \$136.

Overall Results

Requirement	Measured Results	Outcome
Complete a recognizable drawing in less than ten minutes	Completed in 8m8s	FAILED
Fully battery operated	87 minute run time on single charge.	PASS
File conversion and transfer in < 3 minutes.	5.81 seconds average conversion and transfer time.	PASS
Interactive control	13/15 users stated manual control was "Acceptable" or better.	FAILED
Battery charge time no more than 2x total battery life.	Fully charged in 2h30m.	PASS
Geometric drawing within five minutes	Completed in an average of 40.39s.	PASS
Basic shapes within one minute	Completed in 13 seconds.	PASS

Top Level Block Diagram



Meet the Team



Tyler Davis



Cade Conville



Ryan Linden

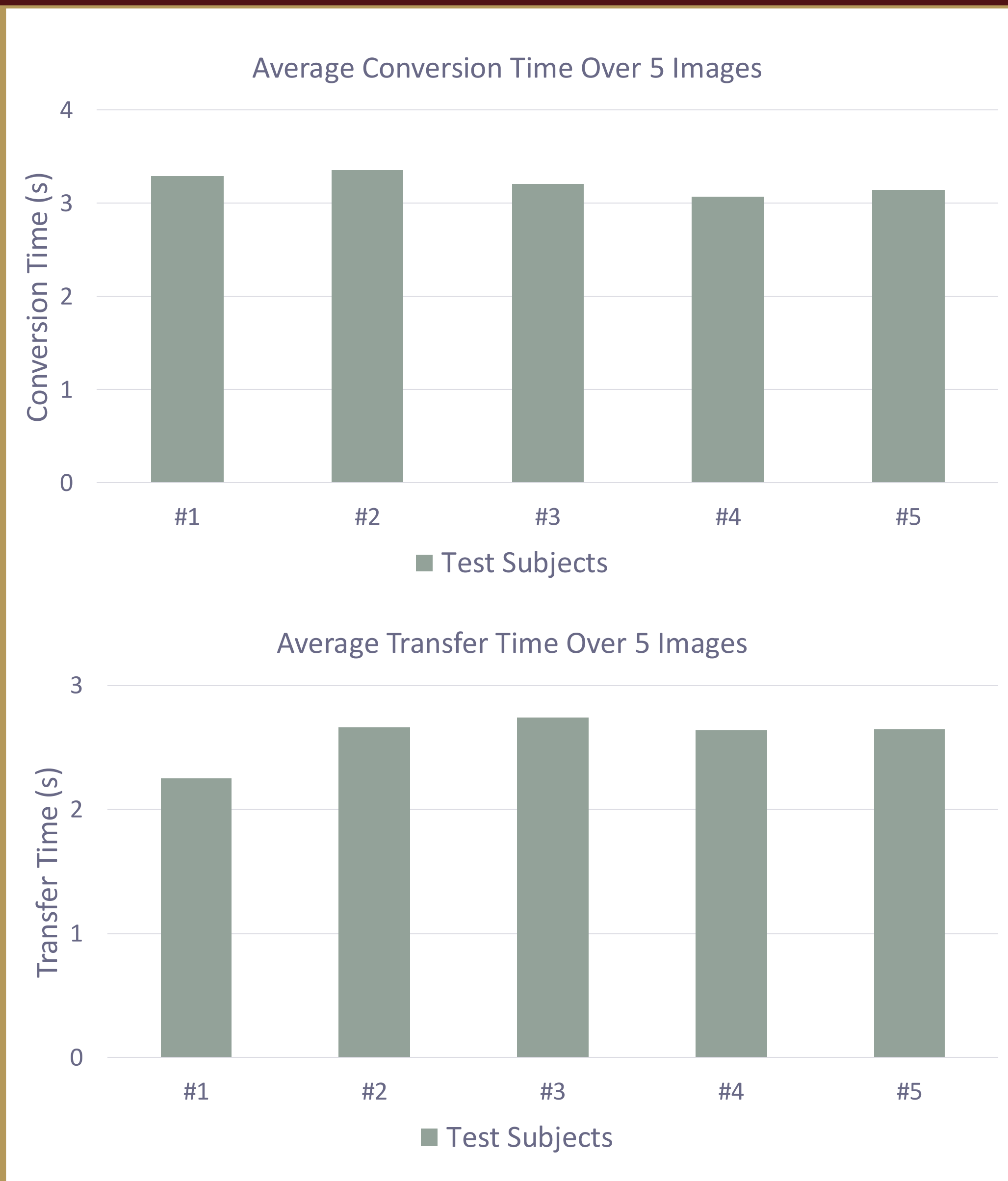


Vikas Somayajula

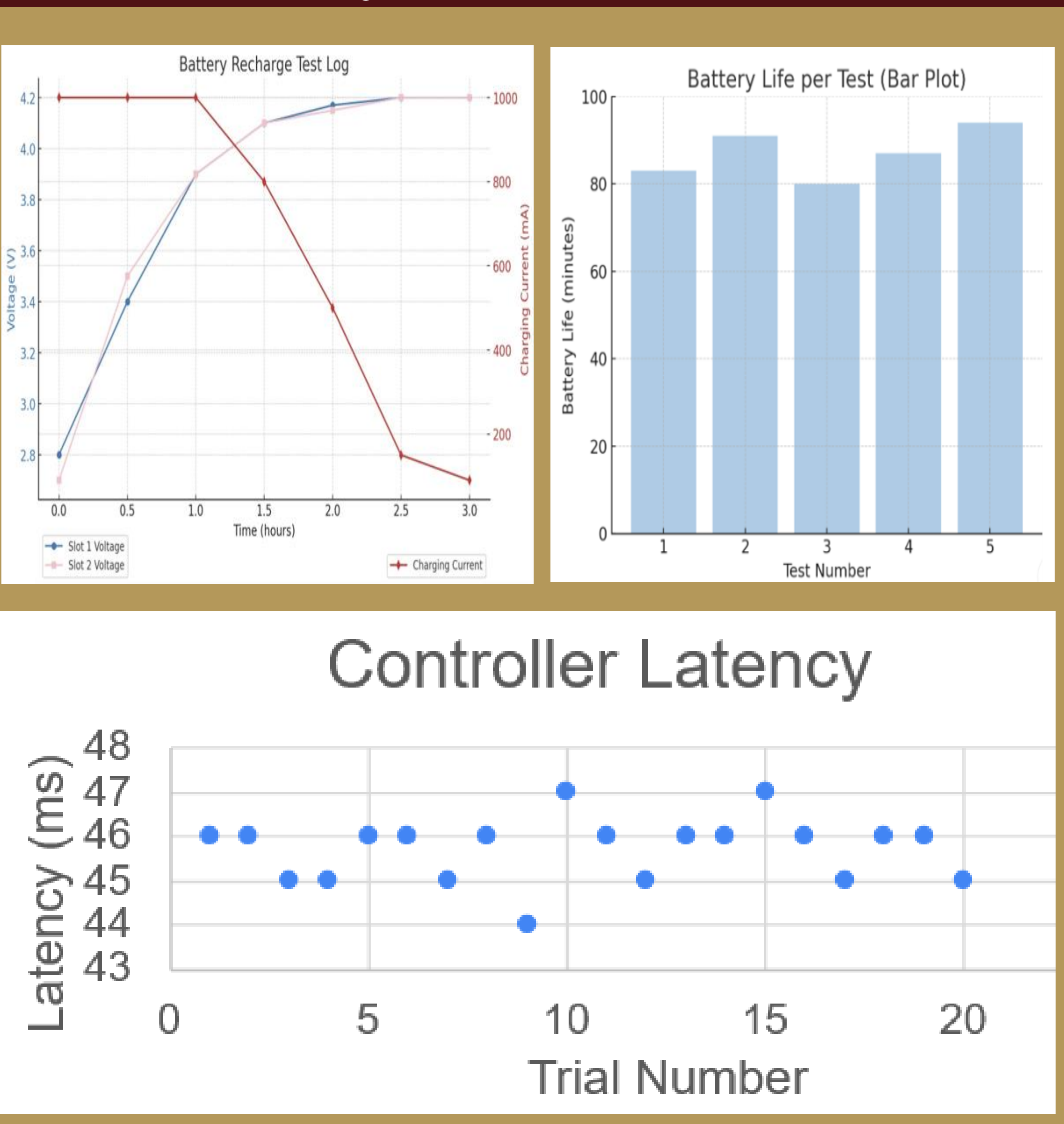
D2 Changes

- LCD to display the image taken.
- 2 independent motor drivers.
- Nunchck for menu selection.
- 5V power bank to two 18650 2,500 mAh batteries, 2A fuse.

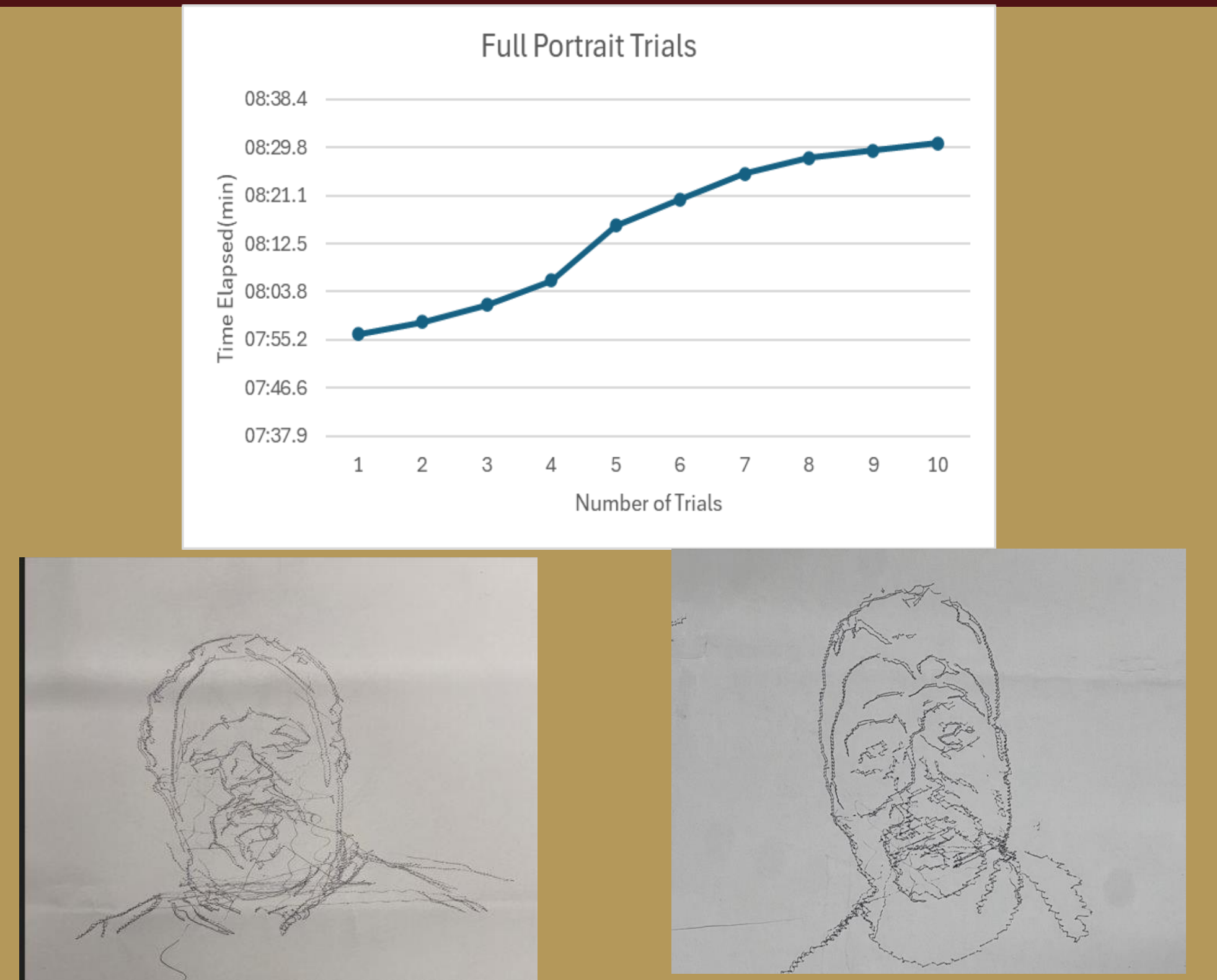
Camera Integration



Battery Life & UI Data



Motor Subsystem Data



Acknowledgements

Sponsors - Dr. Awoniyi, Mr. Stevens
Faculty Advisor - Mr. Stevens
D1 Mentee Team - E1.04 Trace Invaders