

sdmay19-12: Automatic Solder Dispenser

Status Report 11

January 14 - January 27

Client: Leland Harker

Team Members

Jason Austin – Software Lead

Justin Wheeler – Mechanical Lead

Zachary Bumstead – Electrical Lead

Kevin Carlson – Mechanical/Electrical Integrator

Trenton Allison – Software/Electrical Integrator

Samuel Willford – Report Manager and Meeting Facilitator

Summary of Progress this Report

- Designed and ordered PCB for sensors - Trent, Zach, Sam
 - Found reed switch for open box button
 - Designed sensor board
 - PCB uses photoresistor and diode to detect solder
 - Uses 324 amplifier as a “difference” amplifier to get voltage swings from 0-3.3V
 - 3.3V power is used, receiving power from a GPIO pin.

- Update and order new driver board - Trent, Zach, Sam
 - Found reed switch for open box button
 - Mistakes from first board creation were fixed
 - Power supply was changed from 5V to 6V
 - 6V at 3A for more motor power
 - We were mostly concerned with the servo motors not having enough power to cut solder consistently
 - Supercapacitors were placed on board to briefly power pi after power loss
 - This will allow an email alert to be sent to ETG
 - This will also allow time for a safe shutdown of the pi
 - Parts and board were ordered

- Created version 2 of house for photoresistor and coiler - Jason
 - Testing house for photoresistor holds LEDs and photoresistors in place
 - LED holes were too small
 - Glow in the dark material did not work. (Can't be translucent)
 - Needs to be larger in order to attach to sensor board

-
- Worked on sensor code framework - Jason
 - Worked on implementing sensors into program
 - Created spring rods (solder support rolls) and associated brackets - Kevin, Justin
 - Delron was used to create rods
 - Brackets were properly milled to fit rods
-

Pending Issues

- Solder tube/collector piece design
 - Needs to keep people from grabbing the solder and pulling more out
 - Needs to look nice (No elephant trunk/tail hanging from box)
 - Can't be risky in terms of a clog or jam
-

Plans for Upcoming Reporting Period

- Make circuit for sensors - Jason, Trent, Zach
 - Test circuit for jam sensor and open box sensor
 - Add circuit to PCB
 - Order and create PCB
 - Test
- New coiler needs created
 - This is for coiling the tubing
 - Coils' radius was slightly too small for tube to fit through.
- Refine testing house for photoresistor and coiler - Jason
 - Testing house holds photoresistors, LEDs, and solder tubes place
 - Four photoresistors, diodes, and solder tubes
 - Jams are detected inside this structure
 - PCB for sensors will attach to this
 - Needs to be made slightly larger, with holes added for connecting to sensor board
 - Holes for diodes need to be slightly larger in diameter
- Finish extruders - Justin
 - Finish putting aluminum extruders together and test
 - Refine if necessary
- Program emailing procedure - Jason
 - Create code to send ETG an email
 - Emails will be sent weekly containing solder use information
 - Emails will also be sent when a jam occurs or when box is unplugged
- Create and test updated coiler - Jason
 - Last coiler made was slightly too small for tubes to fit

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Sam Willford	Managing schedule, reports, Design Document, Project Plan final updates, presentation	24	113
Jason Austin	Worked on testing sensors, card reader/database programming, coiler and photoresistor testing house, presentation	16	119
Trent Allison	Worked on fixing PCB, sensors, presentation	24	111.5
Justin Wheeler	Worked on sensors, drill and tapping holes, presentation	14	91.5
Kevin Carlson	Research open box sensor, presentation	14	69
Zach Bumstead	Updated website, presentation	23	78

Gitlab Activity Summary

Action: pushed to, Sat Sep 08 2018

Author: willford

Title: Added Parts List

Action: joined, Sat Sep 08 2018

Author: wheeler1

Action: pushed to, Sat Sep 08 2018

Author: jsaustin

Title: Added stepper pinout file

Action: pushed to, Tue Sep 04 2018

Author: jsaustin

Title: updates

Action: pushed to, Tue Sep 04 2018

Author: jsaustin

Title: Upload of test app and env set

Action: pushed new, Thu Aug 30 2018

Author: jsaustin

Action: joined, Tue Aug 28 2018

Author: carlson5

Action: joined, Tue Aug 28 2018

Author: zrbum

Action: joined, Tue Aug 28 2018

Author: willford

Action: joined, Tue Aug 28 2018

Author: jsaustin

Action: created, Tue Aug 28 2018

Author: sd
