sdmay19-12: Automatic Solder Dispenser
Week 10 Report
November 12 - December 3
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

- Tested sensor options for jam detection - Jason, Justin, Trent
    - Tested photodiode, photoresistor, inductive sensing, capacitive sensing
        - Inductive and capacitive had too small of voltage swings (a few mV)
        - Photodiode did not work
        - Photoresistor worked and had voltage swings of 100mV
            - Later a circuit with op-amp was devised to increase voltage

- Attempted to fix PCB - Trent
    - Driver #3 has not been working
    - Attempted to resolder chip
        - Pads tore off
        - Attempted to connect wires directly
            - Pins tore off chip
    - New board will be created later with updates

- Drilled and Tapped holes - Justin
    - Any holes that could be drilled without CNC mill were made
    - Files for milling were sent to client
        - Should be done this week
    - Pins and hardware were ordered and received

- Designed and created testing house for photoresistor and coiler - Jason
    - Testing house for photoresistor holds it in place
        - Hole goes through it for tubing
    - Coiler was made
        - This is for coiling the tubing
        - Coils' radius was slightly too small for tube to fit through.

- ■ Will hopefully allow us to dispense solder similar to vending machine
    - ● Goal is to avoid a pipe protruding from box

- Card reader implemented with database - Jason
    - Card reader now works with database
    - Student can swipe ID
        - ■ Program will check database and see if student has gained solder in last 20 minutes
        - ■ Program will deny solder if time is less than 20 minutes
        - ■ Verified to work

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

- Finish extruders - Justin
    - Put aluminum extruders together and test
    - Refine if necessary

- Complete Programming - Jason
    - Refine program, make screens visually appearing
        - ■ Basic functionality screens currently being used for test purposes
    - Add solder descriptions to screens
    - Add box functionality descriptions to screens
    - Generate usage reports, determine when 5% remaining
    - Send emails

- Create and test updated coiler - Jason
    - Last coiler made was slightly too small for tubes to fit

- Research and pick a battery/capacitor for power outages
    - Should hold enough power to send email to ETG

- Integrate extruder, cutter, spools, and tubes - Justin, Kevin
    - Use tubing to make solder flow from spool to extruder to cutter
    - Figure out how to get solder to the user after the cutter

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Sam Willford	Managing schedule, reports, Design Document, Project Plan final updates, presentation	22	89
Jason Austin	Worked on testing sensors, card reader/database programming, coiler and photoresistor testing house, presentation	42	103
Trent Allison	Worked on fixing PCB, sensors, presentation	22	87.5
Justin Wheeler	Worked on sensors, drill and tapping holes, presentation	20	77.5
Kevin Carlson	Research open box sensor, presentation	9	55
Zach Bumstead	Updated website, presentation	10	55

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