

**sdmay19-12: Automatic Solder Dispenser**

Status Report 15

February 18 - February 25

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

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**Summary of Progress this Report**

- Safe shutdown development and testing - Jason
  - When the pi loses power, it needs to shut down safely
    - Will have power for approximately 10 seconds
    - Sends email to ETG first, then shuts down
- Opened box code implementation - Jason
  - A magnetic reed sensor determines when box has been opened
  - Code was written to recognize when box has been opened
    - It will send an email alert to ETG
- Troubleshooting diode and photoresistor sensor board - Sam, Trent, Zach
  - 2 out of 4 diode and photoresistor combinations worked as expected
  - 3d printed holes in sensor housing seemed to cause lighting variations
    - We plan to make a new block that is hand-drilled
  - New 3d printed housing was made from black material
    - No results changed
- Debug Driver Board - Trent
  - Regulator gets very hot
    - Almost to the point of burning your fingers
    - A large heat sink was added to the design to fix this problem
  - Pads for the 26mV diode were the wrong size
    - The PCB design was updated with the correct pads
    - We managed to attach the diodes to board by using wires
- Fabricated Mounting Plate for Sensor Board - Justin
  - Holes for attaching to cutter/standoffs were drilled

- Installed first pair of spool brackets and mounted first motor in box - Justin
  - Holes for each of these were drilled into baseplate

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## Pending Issues

- None at this time

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## Plans for Upcoming Reporting Period

- Troubleshoot and fix PCBs - Trent, Sam, Zach
  - Need to determine the cause of issues for both driver board and sensor board
    - If a new board needs to be made, we need to get it designed quickly
- Cut lid and install screen - Kevin
  - Lid of box needs to be cut on mill
  - Need to be careful (We only have 1 lid!)
- Create code for priming and retracting solder - Jason
  - When inserting a new roll of solder, the stepper motor must initially “calibrate”.
  - After each use, solder may need to retract a couple inches to avoid jams.
- Jam detection implementation - Jason
  - Use sensor board and ensure that jams are detected and an email is sent

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## Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Sam Willford	Troubleshooting sensor board, report 14, troubleshooting driver board	10	140
Jason Austin	Safe shutdown development and testing, openbox implementation	11	154
Trent Allison	Fixed driver board, debugged broken pi pins	13	137.5
Justin Wheeler	Mounted first motor in box for testing	9	124.5
Kevin Carlson	Finished supports for spool brackets, installed plungers into spool holders	5	87
Zach Bumstead	Help test sensor board, help make updates to driver board	12	107

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