

**sdmay19-12: Automatic Solder Dispenser**

Status Report 16

March 18 - March 31

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**

- Ordered extruder MK7 drive gear - Kevin, Justin
  - We have one gear that works well because it is concave
  - Non-concave gears were tested and found to not work well
  - The MK7 looks very close to the one we have working
- Tested one extruder with cutter and output tube - Sam, Justin
  - With the one driver gear we had that worked, one extruder was tested
  - We dispensed over 40 times with no issues (without coiler)
  - Coiler did not work
    - Could not get extruder to pump solder through coiler
- Extended screen power wires and connected open-box sensor to driver board - Sam, Kevin
  - Wires had to be lengthened to reach board
- Debugged power loss sensor - Trent, Jason
  - The power loss sensor needed “debouncing”
  - The voltage would drop below the trigger point due to an increase in amperage
    - even though power had not been lost
  - “Averaging” was placed in the code to ensure pi only shuts off when power is truly lost

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**Pending Issues**

- None at this time
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**Plans for Upcoming Reporting Period**

- Connect extruders to coiler and cutter via tube
  - 3 more extruders need to have tubing connected
  - Test to ensure solder can travel smoothly
  - If coiler does not work well, we can dispense without it
- Finish software
  - Add database resetting option in administrative page
  - Resize buttons, add color if possible
- Add reset pushbutton to box
  - This button will reset the pi if power returns quickly
    - Only needed when power returns before the capacitors drain
- Test open-box sensor and functionality
  - Need to ensure the software is present for this
- Get acrylic piece bent for 45 degree slant
  - The box will need to be at 45 degrees in order for solder to slide through the output tube
- Solder and test opto-isolator PCB
  - Ensure code for priming and retracting works also

### Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Sam Willford	Report 17, tested one extruder with tubes, extending pi screen wires	5	171
Jason Austin	Safe shutdown "averaging"	5.5	177.5
Trent Allison	Safe shutdown "averaging"	4.5	165
Justin Wheeler	Tested extruder with tubes, helped Kevin find driver gear	5	147.5
Kevin Carlson	Connected open-box sensor to driver board (via crimping), found MK7 driver gear	5	111
Zach Bumstead	Waiting on opto-isolator PCB	1	131

