Automated Microbial Analysis Weekly Meeting Notes

11/21/19

* Group Members in Attendance
  + Bendt, Zachary
  + Bruslind, Jorian
  + Hall, Macklin
* Project Unknowns and Risks
  + Can a single Raspberry Pi be used to do image processing AND motor control?
  + Should we include a depression to catch the finished samples?
  + How can we ensure accurate motor movement?
  + Do we need to implement half-stepping in the motors? If so, will we still have enough torque?
  + What purpose does our final project aim to fulfill?
  + What type of user interface should we have?
* Tasks from This Week
  + Zach
    - Researched RaspberryPi CNC software (2 hrs)
    - Researched how to run GRBL code on the RaspberryPi (2hrs)
    - Tested more samples with existing test code to refine analysis (1 hr)
    - Interface definition, block diagram and engineering requirements review (1 hr)
  + Jorian
    - Assembled main limit switch homing system (2hrs)
    - Looked into RPI CNC software -> Hardware interface (1hr)
    - Reviewed mechanical sim data for stress testing (3hrs)
  + Mack
    - Designed custom PCBs (3 hrs)
    - Ordered custom PCBs and buck converter (30 min)
    - Assembled custom PCBs (2 hrs)
    - Researched Raspberry Pi CNC software (30 min)
* Group Meeting Topics
  + Porting grbl (or other CNC control software) to the Raspberry Pi
  + Raspberry Pi blob detection software effectiveness
  + Limit switch placement and implementation
  + Buck converter implementation
* New Items
  + Group is investigating removing the arduino from the project, replacing it with the Raspberry Pi
  + The limit switches will receive newly modeled and 3D printed supporting structures
  + The motor modules will now be comprised of custom PCBs
  + The vacuum pump now has a suitable 12VDC power supply
* Tasks for Next Week
  + Zach
    - Test GRBL code on RaspberryPi (1hr)
    - Set up meeting with Don to discuss interface property requirements (15 min)
    - Research how to output data to and HTML in Python (2 hrs)
    - Research how to run GRBL code using Python (1 hr)
  + Jorian
    - Work with hardware to test the limits of motion (3hrs)
    - Optimize slop in arm linkages (1hr)
  + Mack
    - Test and implement custom PCBs (1.5 hrs)
    - Further research Raspberry Pi CNC software (1 hr)
  + Everyone
    - Do good; don’t do bad.
* Hours This Week

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| --- | --- | --- | --- |
|  | Total Hours | Hours w/ Team | Hours Helping |
| Bendt, Zachary | 6 | 4 | 4 |
| Bruslind, Jorian | 6 | 4 | 4 |
| Hall, Macklin | 10 | 4 | 4 |