

# Project Status Review

## Team Re:engineering



May 12, 2018 - August 20, 2018



Robert Oakley



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## Purpose & Objectives



- Create a system that can be used to allow the Gigabot X 3D printer to print with plastic bottle flake
- Create a System that will dry the bottle flake to an extrudable moisture level
- Be able to turn the dried flake into a useable pellet



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# Specifications and Functional Requirements

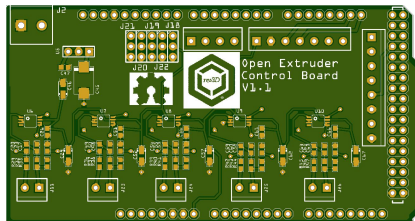


- Pellet size should be no larger than 3mm
- The total system should produce at least 2 lbs of pellets per hour
- Pellets requires a maximum moisture content amount of 0.02% of its Molecular Weight to retain its quality

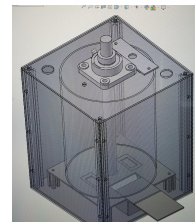
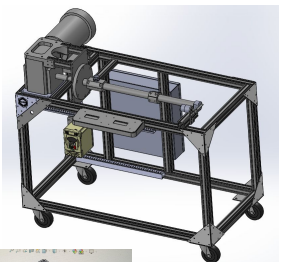
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## Status Update



- Parts have been acquired
  - Extruder Screw and Barrel
  - Extruder Heaters
  - Motor and Gearbox
  - Dryer Heater
- Final Revision of controller PCB's Arrived yesterday
  - Need to solder up
- CAD
  - Final Drawings Being Completed
  - Wiring Diagram being completed



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# Program Management

Task Name	Budgeted	Actual Hours	Work Variance	Baseline Cost	Actual Cost	Cost Variance	Gantt Chart															
	Worked	Worked					Qtr 1, 2018	Qtr 2, 2018	Qtr 3, 2018	Qtr 4, 2018	Qtr 1, 2019											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Senior Design 2018	2,147.5 hrs	1,679.92 hrs	-467.58 hrs	\$214,750.00	\$167,991.53	(\$46,758.47)																
Senior Design I: Spring 2018	1,264.5 hrs	1,255.67 hrs	-8.83 hrs	\$105,250.00	\$125,566.53	\$20,316.53																
Customer Discovery Report	41 hrs	63.25 hrs	22.25 hrs	\$4,100.00	\$6,325.00	\$2,225.00																
Design Specifications	157.5 hrs	160 hrs	2.5 hrs	\$15,750.00	\$16,000.00	\$250.00																
Gantt Chart	96 hrs	47 hrs	-49 hrs	\$9,600.00	\$4,700.00	(\$4,900.00)																
Design Report	401 hrs	166 hrs	-235 hrs	\$40,100.00	\$16,600.00	(\$23,500.00)																
Operation Manual	188 hrs	132.5 hrs	-55.5 hrs	\$18,800.00	\$13,250.00	(\$5,550.00)																
Drawing Package	95 hrs	272.5 hrs	177.5 hrs	\$9,500.00	\$27,250.00	\$17,750.00																
Critical Design Review	74 hrs	80 hrs	6 hrs	\$7,400.00	\$8,000.00	\$600.00																
Senior Design I.5: Summer 2018	524 hrs	424.25 hrs	-99.75 hrs	\$52,400.00	\$42,425.00	(\$9,975.00)																
Drawing/Design Modifications	200 hrs	391.25 hrs	191.25 hrs	\$20,000.00	\$39,125.00	\$19,125.00																
Bill of Materials Ordering	16 hrs	25 hrs	9 hrs	\$1,600.00	\$2,500.00	\$900.00																
Manufacturing	148 hrs	8 hrs	-140 hrs	\$14,800.00	\$800.00	(\$14,000.00)																
Project Assembly	160 hrs	0 hrs	-160 hrs	\$16,000.00	\$0.00	(\$16,000.00)																
Senior Design II: Fall 2018	571 hrs	0 hrs	-571 hrs	\$57,100.00	\$0.00	(\$57,100.00)																
Status Report 1	30 hrs	0 hrs	-30 hrs	\$3,000.00	\$0.00	(\$3,000.00)																
Test Plan	26 hrs	0 hrs	-26 hrs	\$2,600.00	\$0.00	(\$2,600.00)																
Status Report 2	12 hrs	0 hrs	-12 hrs	\$1,200.00	\$0.00	(\$1,200.00)																
Thematic Outline	32 hrs	0 hrs	-32 hrs	\$3,200.00	\$0.00	(\$3,200.00)																
Draft Abstract	16 hrs	0 hrs	-16 hrs	\$1,600.00	\$0.00	(\$1,600.00)																
Final Abstract	32 hrs	0 hrs	-32 hrs	\$3,200.00	\$0.00	(\$3,200.00)																
Final Poster	56 hrs	0 hrs	-56 hrs	\$5,600.00	\$0.00	(\$5,600.00)																
Test Report	120 hrs	0 hrs	-120 hrs	\$12,000.00	\$0.00	(\$12,000.00)																
Draft Final Report	20 hrs	0 hrs	-20 hrs	\$2,000.00	\$0.00	(\$2,000.00)																
Status Report 3	16 hrs	0 hrs	-16 hrs	\$1,600.00	\$0.00	(\$1,600.00)																
Tech Symposium	18 hrs	0 hrs	-18 hrs	\$1,800.00	\$0.00	(\$1,800.00)																
Final Review	152 hrs	0 hrs	-152 hrs	\$15,200.00	\$0.00	(\$15,200.00)																
Final Binder	41 hrs	0 hrs	-41 hrs	\$4,100.00	\$0.00	(\$4,100.00)																

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# Schedule

- Have Taken Away Granulator
  - Sponsor ordered one through SBIR grant
  - Not necessary anymore
- Delivery will consist of the following
  - Extruder/Pelletizer
  - Dryer

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# Material Cost



Project Budget 2018			
Spring 2018 Estimated		Fall 2018 Actual	
Original Project Budget	\$10,000.00	Original Project Budget	\$10,000.00
Deduction of Granulator From Scope	-\$3,500.00	Deduction of Granulator From Scope	-\$3,500.00
New Project Budget	\$6,500.00	New Project Budget	\$6,500.00
Estimated Material Cost	\$4,615.00	Actual Material Cost	\$6,326.90
R&D Increase due to modifications	25.00%	Machining	\$350.00
Estimated Material Cost	\$4,614.75	Total Project Cost	\$6,676.90
Budget Remainder	\$1,885.25	Budget Remainder	-\$176.90

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# Major Risk



- Ordered Parts Arriving on time
  - Chinese Tariffs
  - Chinese Automation
- Manufacturing Schedule
  - In Sponsors manufacturing Queue
  - Waterjet Queue
- PCB
  - Proper Assembly and Function
- Moisture Testing

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# Risk Mitigation

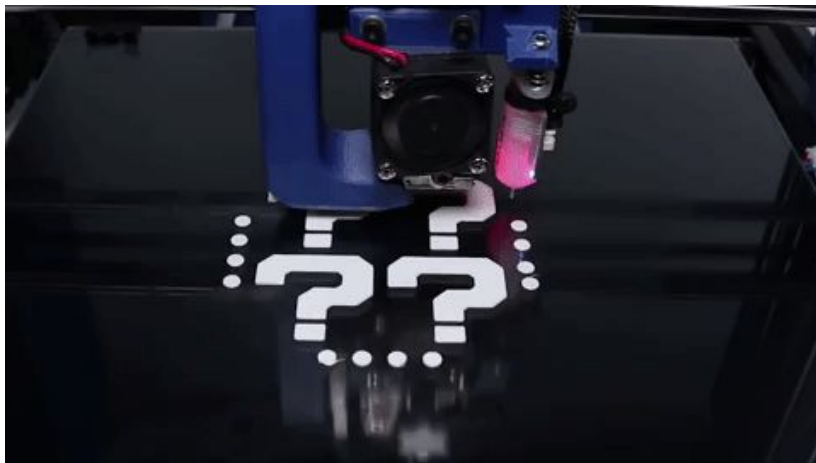


- Ordered the majority of foreign parts already and the final ones should be ordered soon
- Checking with suppliers on lead times and finding other suppliers as backup
- Getting parts into queue as soon as possible to avoid delay
  - All extrusion can be precut from Misumi to tolerance
- Assembling PCB this week to start testing asap and get code base built
- Acquired Moisture analysis equipment for testing through sponsor. Will be talking with manufacturer to get profile for PET flake

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# Questions?



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