

## Project Status Report 4

Project Name: PCB Pick and Place

Team Name: JFL

Project Manager: Robin Pottathuparambil

Team Members: Jailine Contreras Marquez, Fernando Zavala-Ortiz, Lap Nguyen

Report Date: 12/14/2023

Reporting Period: 11/10/2023 to 12/14/2023

### Management Summary

Defined milestones completed: 7 of 7 (100%)  
Defined tasks completed: 7 of 18 (38%) of child tasks in work breakdown structure  
Total estimated project hours used: 160 of 960 (20%)  
Ahead of (or Behind) schedule by: 10 labor-hours, 0 days  
Known defects: 0 open of 0 found  
Staff members on project: 0 of 0 planned  
Contingency hours remaining: 100% of 3 hours

### Schedule

Initial estimated completion date: May 10th 2024  
Previous estimated completion date: May 10th, 2024  
Current estimated completion date: May 10th, 2024

### Key Milestones Table

ID	Title	Planned Completion Date	Previous Forecast Completion Date	Current Forecast Completion Date	Actual Completion Date
1	requirements draft due/status report 1	9/12/23	9/14/23	9/14/23	9/14/23
2	specification draft due/requirements due	9/20/23	9/22/23	9/22/23	9/22/23
3	specifications due	9/27/23	9/29/23	9/29/23	9/29/23
4	preliminary design due	10/04/23	10/06/23	10/06/23	10/06/23
5	parts order due/status report 2	10/11/23	10/13/23	10/13/23	10/13/23
6	detailed design due	10/18/23	10/20/23	10/20/23	10/20/23
7	status report 3	11/8/23	11/10/23	11/10/23	11/10/23
8	Status report 4	12/14/23	12/14/23	12/14/23	12/14/23

## Product Size

For project, we plan to use Minisforum UM790 Pro mini-PC with dimensions of 130mm\*126mm\*52.3mm

## Effort

Life Cycle Activity	This Reporting Period (labor-hours)		Project to Date (labor-hours)	
	Planned Effort	Actual Effort	Planned Effort	Actual Effort
project completion	80	80	80	80

## Cost

Life Cycle Activity	This Reporting Period		Project to Date	
	Planned Cost	Actual Cost	Planned Cost	Actual Cost
Parts and Supplies	\$1000	\$166.36	\$1000	\$166.36

## Requirements Status

ID	Functional Requirements	Team Member Responsible	Effort (%)	Verification	Completed (%)
FR1	A machine learning model will use the camera to find the location of the PCB.	Fernando Zavala	35%	Test	100%
FR2	A fiducial will be created for the test tray.	Fernando Zavala	5%	Inspection	100%
FR3	Images of the fiducial and PCB should be created and used to train the model.	Fernando Zavala	10%	Test	50%
FR4	A web interface will allow the user to login and start/stop the system.	Jailine Contreras Marquez	20%	Demonstration	95%
FR5	User should have access to camera feed on the interface.	Jailine Contreras Marquez	30%	Demonstration	5%
FR6	Web interface should have a manual override feature where the user	Jailine Contreras Marquez	30%	Demonstration	5%

	should have control of the arm.				
FR7	System should find the PCB by jogging the camera back and forth over a XY axis	Lap Nguyen	20%	Demonstration	90%
FR8	When the PCB location is identified, the system should lower the arm and pick up the PCB using vacuum	Lap Nguyen	10%	Inspection	90%
FR9	When the test tray location is identified, the system should lower the arm and place the PCB in the test tray.	Lap Nguyen	10%	Inspection	90%
FR10	The mini-PC should control the pick-up arm manually to a precise location.	Lap Nguyen	20%	Test	90%
FR11	The camera should be mounted high enough to have a clear and large image.	Fernando Zavala	15%	Inspection	10%
FR12	A machine learning model will use the camera to find the location of the fiducial on the test tray.	Fernando Zavala	30%	Test	50%

ID	Non-Functional Requirements	Team Member Responsible	Effort (%)	Verification	Completed (%)
NF R1	The speed for moving the PCB should be 10mm/s.	Lap Nguyen	20%	Test	50%
NF R2	The system must handle PCBs of size 300 mm wide by 500 mm long.	Lap Nguyen	20%	Inspection	50%
NF R3	The PCB lifting mechanism should be capable of lifting up to 200 g	Fernando Zavala	5%	Inspection	0%
NF R4	The system should pick and place the PCB in 8 seconds.	Jailine Contreras Marquez	10%	Test	0%
NF R5	The system should use the ethernet standard for most communications.	Jailine Contreras Marquez	5%	Inspection	1%

NF R6	The mini-PC should be mounted onto the system.	Jailine Contreras Marquez	5%	Inspection	0%
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### Top Five Risks

1. System might have an error from last time it was used
2. Getting a defective mini PC
3. Software could work in surplus PC but might have to be changed on mini PC

### Open Issues

- Time constraints on team members
- Adjusting camera exposure (camera lighting)
- Cable management
- No access to wireless network from router

### Action Items

- Completed majority of requirements
- Connected Machine into PC and removed FPGA board and raspberry pi.

### Defects

Not Applicable