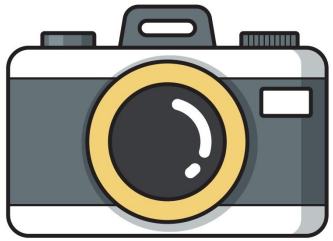
EEC136 Digital Camera



Week 7 Project Update

Waylon, Cassandra, Viktor, Alina, Angel

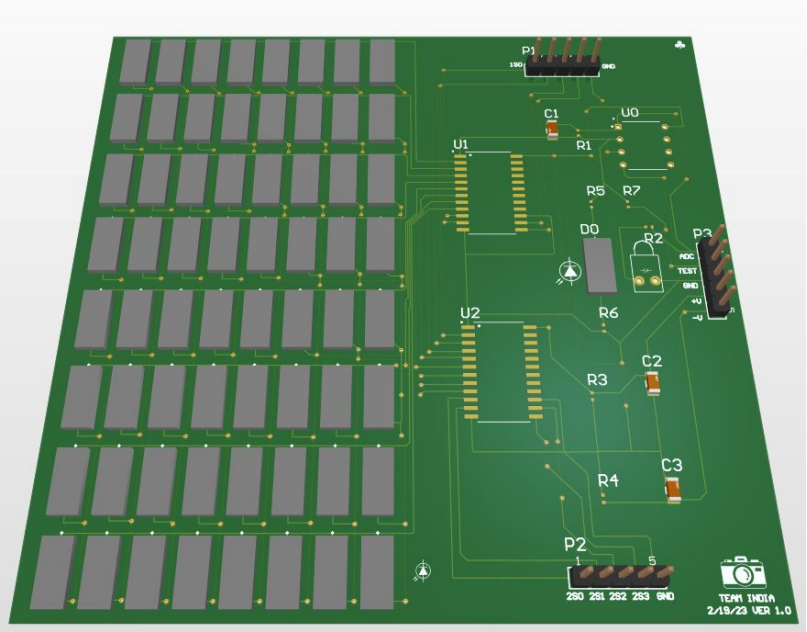
Overview

1. Sent out Photodiode board PCB to Smart Prototyping
2. Worked on code for LCD display to show camera indication
3. Ordered all parts still missing for assembly
4. Worked on beta prototype code.
5. Build a circuit that resembles the beta PCB to perform testing ahead of time.

Waylon

This week:

- Sent out Photodiode Board to Smart Prototyping after verifying with team.
- Placed order for all parts currently do not have.



Next week:

- Receive photodiode PCB
- Assemble PCB
- Test PCB

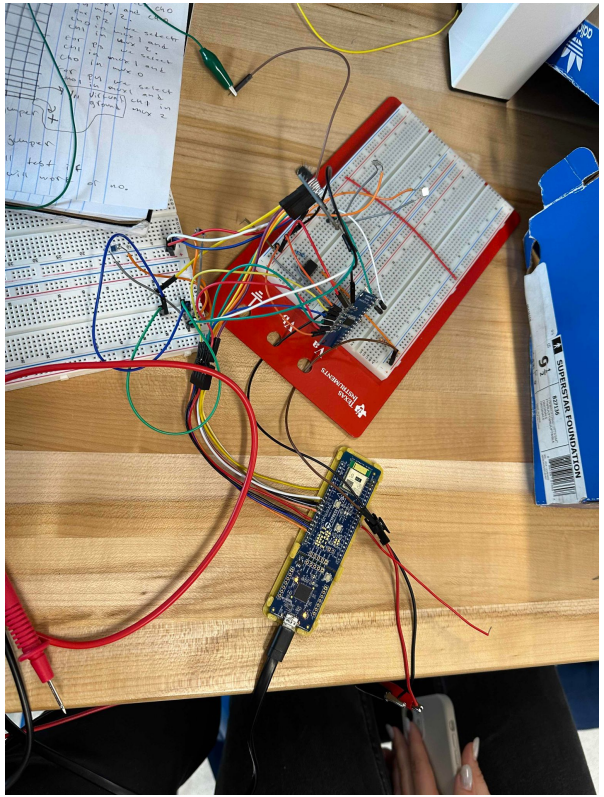
Alina

This week:

- Tested out the multiplexer with Viktor to make sure it reads correct values from the selected channels

Plans for next week:

- PCB Design - Work on the assembly of the photodiode board
- Hardware - Connect the photo board with the psoc



Viktor

This week:

- Hardware : Build beta prototype circuit and perform testing ahead of time with Alina.
- Code: Updated Psoc code to account for the new PCB layout and components.
- Troubleshooting: Work with the team for alternatives for possibles errors.

Plans for next week:

- Hardware :Help the team with the PCB assembly.
- Documentation: Work with team on developing a report.
- Code: Work on the Psoc code.

Angel

This week:

- Hardware: Configured a library for the LCD screen to work properly and display for the user interface.
- Code: Debugged Viktor's Psoc multiplexer code to read the correct ADC values into putty for image processing.
    - Combined the UART Psoc code with Matlab to create a live image when pressing a button with Cassandra. .

Plans for next week:

- Start thinking about the enclosure based on all the components that we will have.
- Focus on soldering the new PCB that was sent to manufacture, hopefully receive it next week.

Cassandra

This week:

- Firmware
  - Created basic structure for acquisition loop
  - Worked with Angel to test combination of LCD and UART output, verifying the MATLAB image processing code in a more realistic test

```
Structure for the firmware

continuously loop:

        Write to LCD: "Ready for picture"
        read button status
        if button is pressed
                Write to LCD: "Acquiring image"
                for (columns)
                        for (rows)
                                read ADC value
                                send the ACD value in UART in format: "ADC "
                        end
                end
                send in UART: "e "
                Write to LCD: "Done"
        else
                don't do anything, continue looping
```

Plans for next week:

- Firmware/Software - continue integrating parts of the firmware (e.x. add MUX control code, read actual ADC values)
- Hardware - assist with assembly when parts arrive
- Documentation - assist with documentation

Reference Images

Fig 1.1 Whole Schematic Diagram

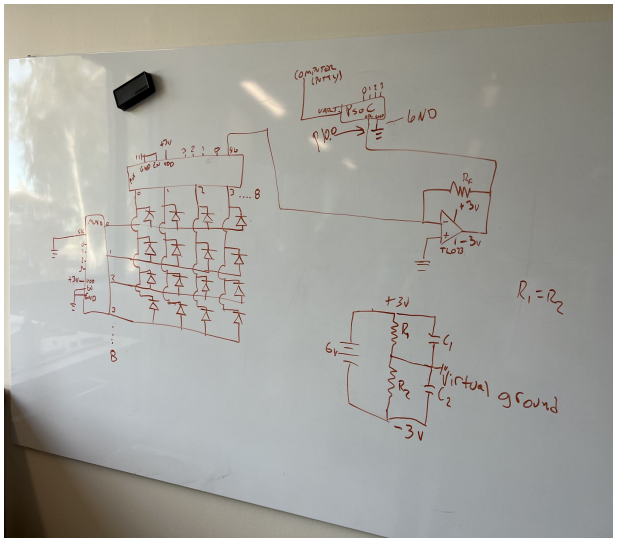
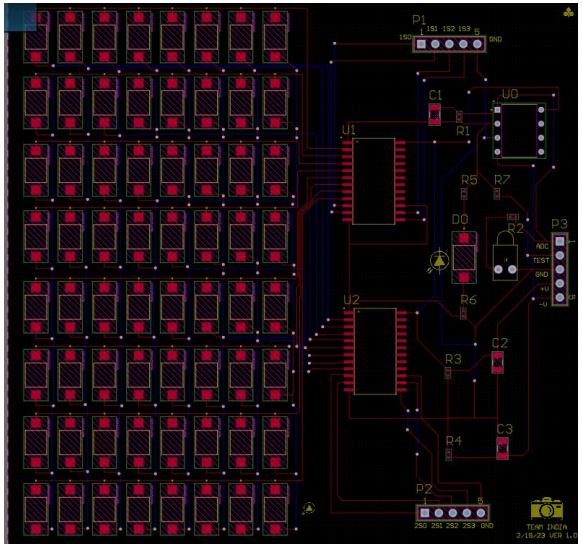
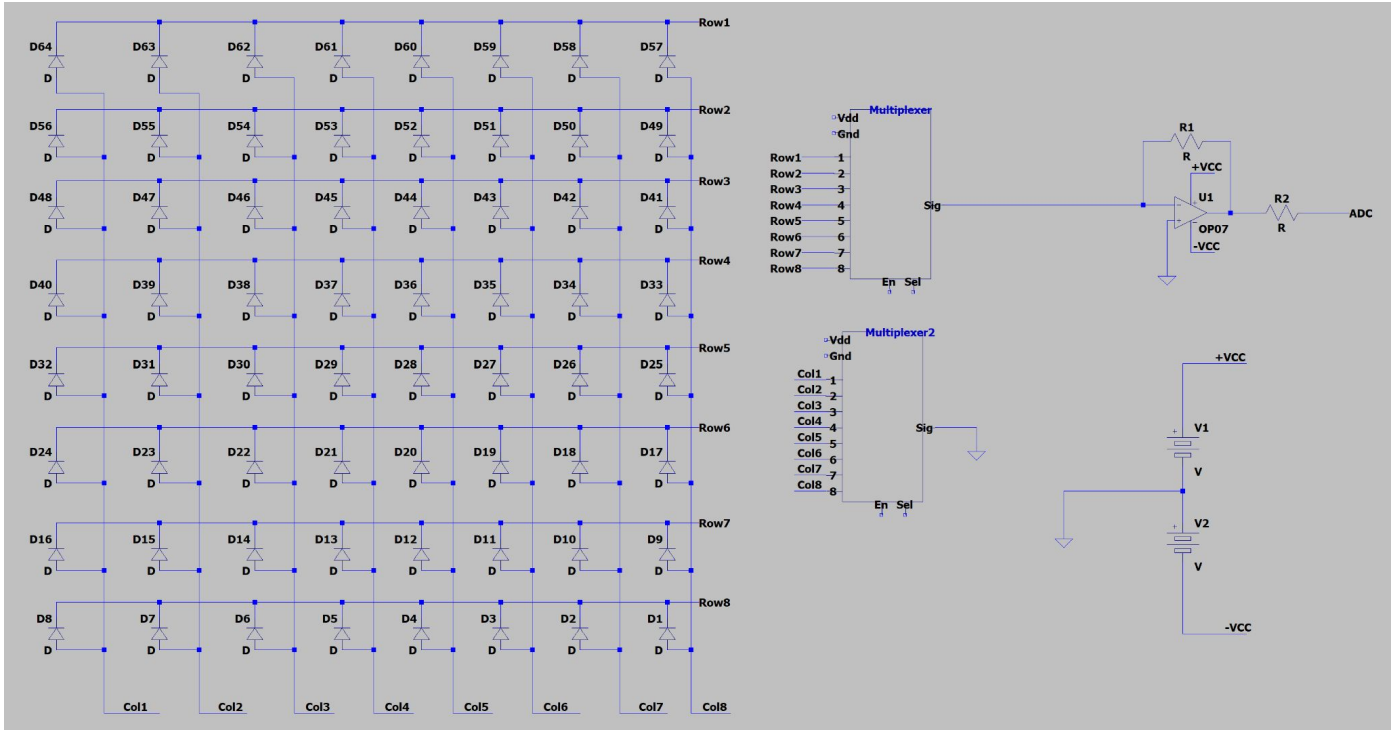


Fig 1.2 PCB layout



Reference Images

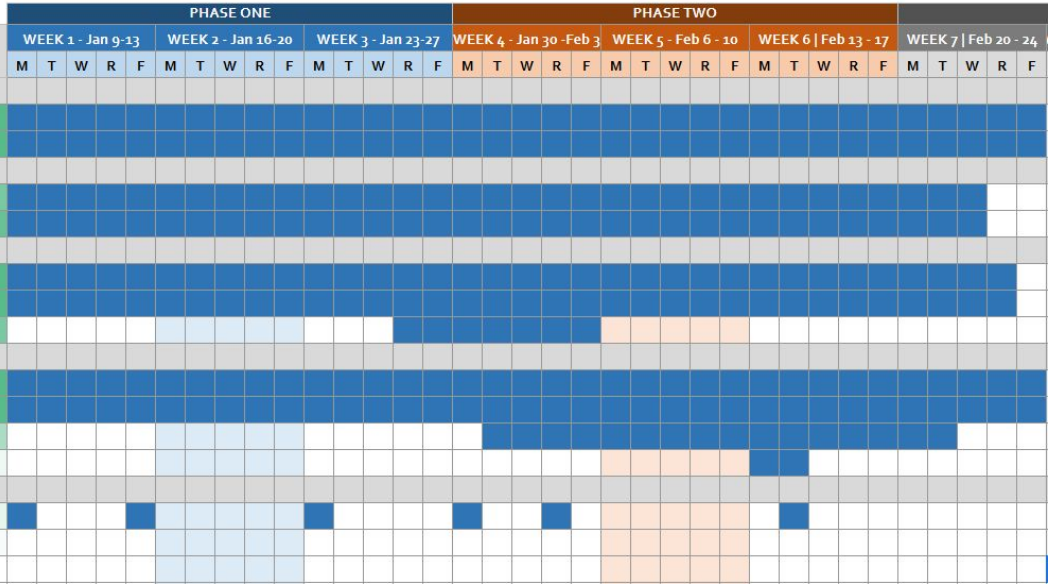
Fig 1.4 Sensor PCB Schematic



GANTT CHART

PROJECT TITLE	Digital Camera	COMPANY NAME	EEC136B
PROJECT MANAGER	Waylon	DATE	2/10/23

WBS NUMBER	TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION	PCT OF TASK COMPLETE
1	Project Conception					
1.1	Concept Design	Casandra	1/9/23	1/27/23	18	100%
1.1.1	Bill of Materials	Vic/Way	12/1/22	1/13/23	42	100%
2	Circuit Design					
2.1	PSOC Programming Board	Angel	1/9/23	1/27/23	18	80%
2.2	Photo Diode Board	Alina	1/13/23	2/10/23	27	90%
3	Software/Coding					
3.1	Reading charge on pixels	Cassandra	1/21/22	2/18/22	27	100%
3.2	Processing Data	Cassandra	1/21/22	2/18/22	27	100%
3.4	Displaying Files	Angel	2/4/22	2/25/22	21	80%
4	PCB Assembly					
4.1	Parts Order Placed	Waylon	1/13/23	2/3/23	20	100%
4.2	PCB Boards Order Placed	Angel	1/13/23	2/3/23	20	100%
4.3	Soldering	Waylon	2/11/22	2/18/22	7	50%
4.4	Continuity Testing	Waylon	2/25/22	3/4/22	9	10%
5	Enclosure Design					
5.1	3D Model	Victor	1/14/22	2/11/22	27	15%
5.2	3D Print	Victor	1/28	2/11/22	13	5%
5.3	Assembly	Waylon	2/11/22	2/18/22	7	0%



[Gantt Chart Google Slides Link]

Bill of Materials Page 1 of 2

Item	Part No.	QTY	Cost	Received
Photodiode	VBPW34S	64	$54.00	X
Button	474-COM-08720	5	$5.25	X
Header Pins	HDR100IMP40M-G-V-TH	10	$4.95	X
PSOC	CYBLE-416045-02	2	TBD	X
Crystal Oscillator	ECS-2520MV-250-CL-TR	1	TBD	
Battery	LIPO Battery (3.7V)	1	$10.95	X
OLED Display	LCD-13003	2	$35.76	X
Tri-LED	HSMD-C191	5	TBD	X
Multiplexer	BOB-13906	2	$5.90	

Bill of Materials Page 2 of 2

Item	Part No.	QTY	Cost	Received
10KΩ Resistor	3503G2B10K7FTDF	4	$6.56	
0Ω Resistor	MCT0603HZ0000ZP500	10	$6.10	
1KΩ Resistor	RA73F1J143RBTDF	2	$3.88	
10uF Capacitor	GMK316BJ106KL-T	1	$0.33	
22pF Capacitor	12065A220JAT2A	2	$2.80	
4.7KΩ Resistor	263-4.7K-RC	2	$0.20	
330Ω Resistor	CMP0805-FX-3300ELF	1	$0.21	
220KΩ Resistor	CRGCQ2512F220K	8	$3.68	
470Ω Resistor	CRG0603F470R	1	$0.14	