GNG 1103 Project Deliverable H: Prototype III and Customer Feedback

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Objective

The team is tasked to develop a third prototype as well as get customer feedback on the prototype.

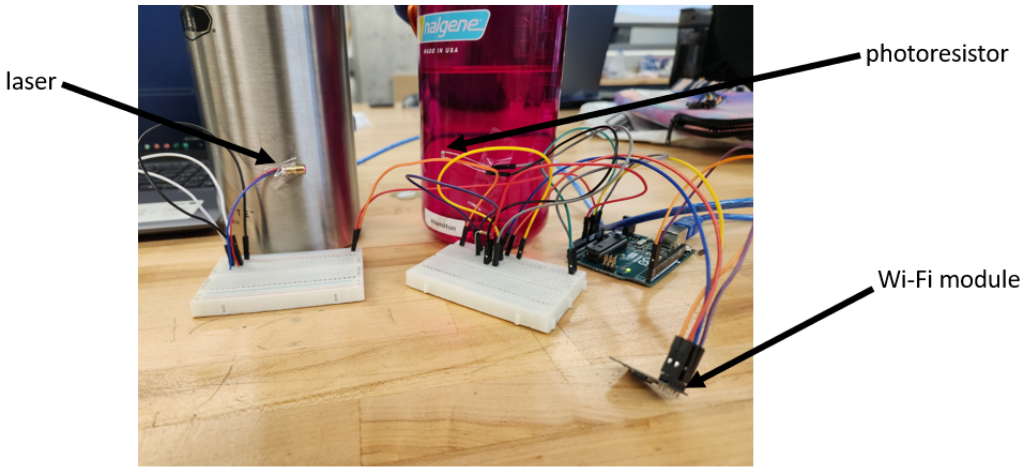
Introduction

Prototyping continues to be an important step in the development of a solution that meets client's needs/ expectations. It involves creating a test plan to assess whether the solution meets the targeted objectives. Furthermore, test plans compose of specific tests that can be utilized to measure the success and/or failure of a provided project solution along with its impact on user experience. By developing a prototype, individuals can identify potential issues before they become problems, ensure that the proposed solution is satisfactory, as well as provide measurable results for the clients.

Client Feedback

In the last week there have been several progressions due to client interactions. Our initial plan was to design our own lasers as well as piggyback off of the lasers that Mill Street had in place but it has been clarified that those lasers currently on the process lines are incapable of counting cans at the moment. This means that that part of the plan is completely scrapped and the whole system is now reliant on our laser tripwire. Later this past week we gave our pitch presentation. The presentation was received well and we received no urgent feedback or questions from the client. We were able to ask questions and received clarification on the accuracy threshold of the system and what the flagging percent should be for the errors. If the production line is anywhere below 5% of the theoretical data, the system will now flag the number. All in all, we are now able to move forward and continue prototyping to iron out the kinks in our numbers and fully set up the data collection system.

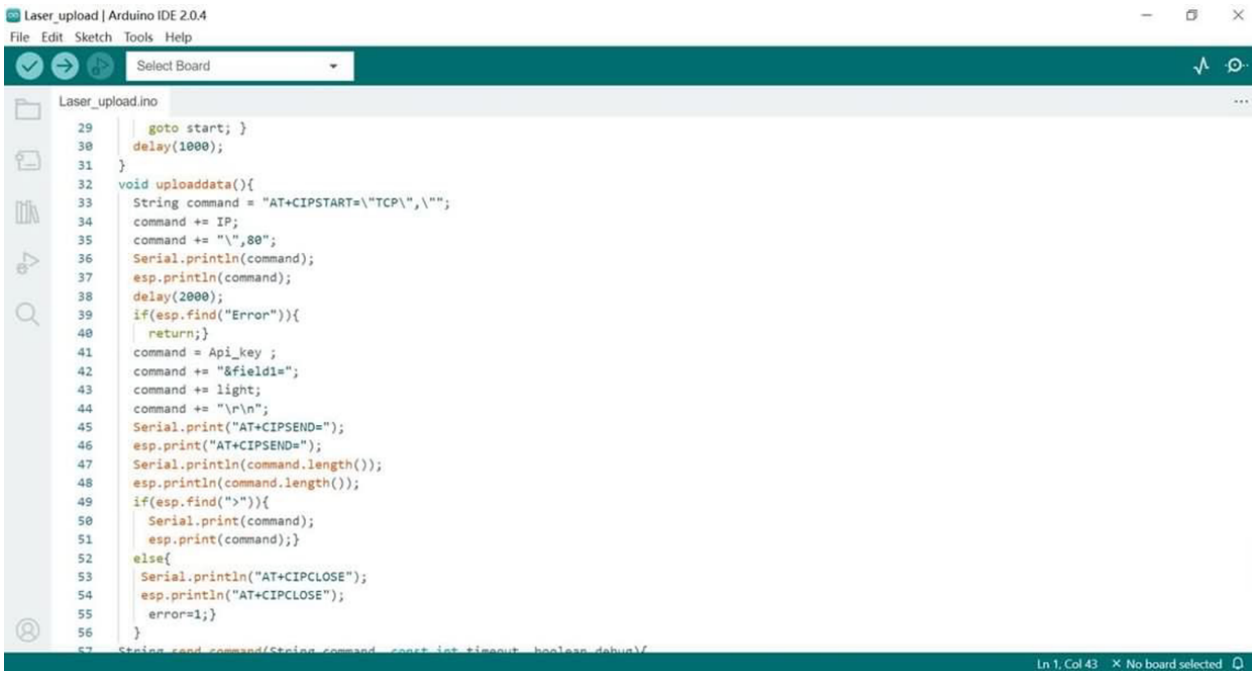
Prototype Breakdown



This is our most recent prototype it functions using a laser and photoresistor as a tripwire with the following code:

```
1   int photoPin = A0;
2
3   void setup() {
4     Serial.begin(9600);
5   }
6
7   void loop() {
8     int light = analogRead(photoPin);
9     if(light<150){
10    Serial.println(light);
11    delay(200);
12    }
13  }
```

This code only sends data to a spreadsheet when the light levels are below 150. The wifi module part of the device takes the data and uploads it to a website using the following code

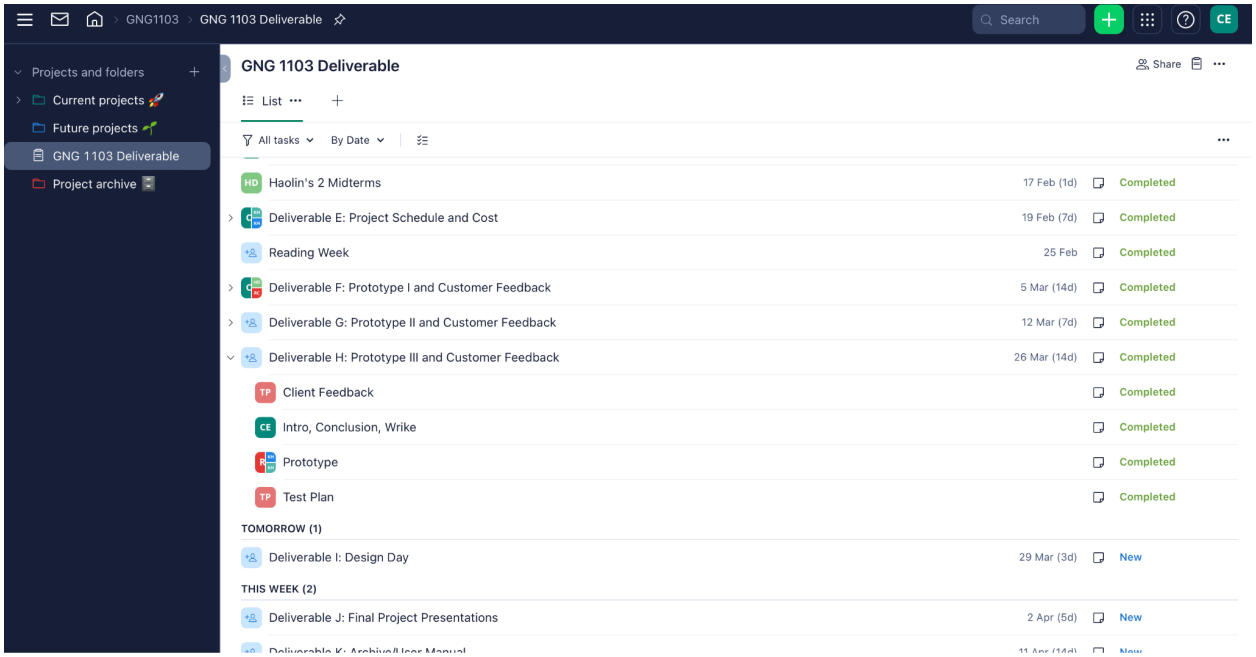


Updated Prototyping Test Plan

Test ID			
2	To determine at what laser sensor can function without lowering functionality	Begin at a distance of 1 can; break the laser with hand note results repeat process until the code stops working properly	To find the max distance the laser can function without inaccurate data. This will help keep the results of future tests more controlled
3	To determine the cans per minute being pushed through the lasers	Push soda cans through laser and calculate a cpm rate manually	To make sure the cpm rate found manually is equivalent to the cpm tracked via cpu
4-5	To determine if the data real-time data is the same as the data being stored on the dw cloud	Have cans break the laser and manually note down the values. After a few attempts cross-examine the values written to the values on the cloud	To make sure the data transfer system is functioning properly (this test is the same test as above just using different speeds to ensure the results are consistent
6	Once all the other test are a complete test to find what is the best light level that minimizes faults	Break laser with hand and find the average light level and add about 15% to that number	This test will prevent a scenario where the light levels will get low and count as a can even though the laser wasn't broken

Wrike

Below are screenshots of an updated Wrike task board that includes changes made in estimated task duration, completed tasks/ responsibilities, additional dependencies, and tasks assignees etc.



Conclusion

The result from the previous prototype is analyzed and considered for the current prototype test plan done to create an updated target specification. Though the laser sensor requires an ongoing process of careful testing and analysis, the test plan further evaluates the effectiveness and success of the proposed solution. The team continues to utilize Wrike to track project progress and milestones. Through this, the team can identify any potential areas for improvement before project completion.