The Deliveroid Project: Progress Report 4

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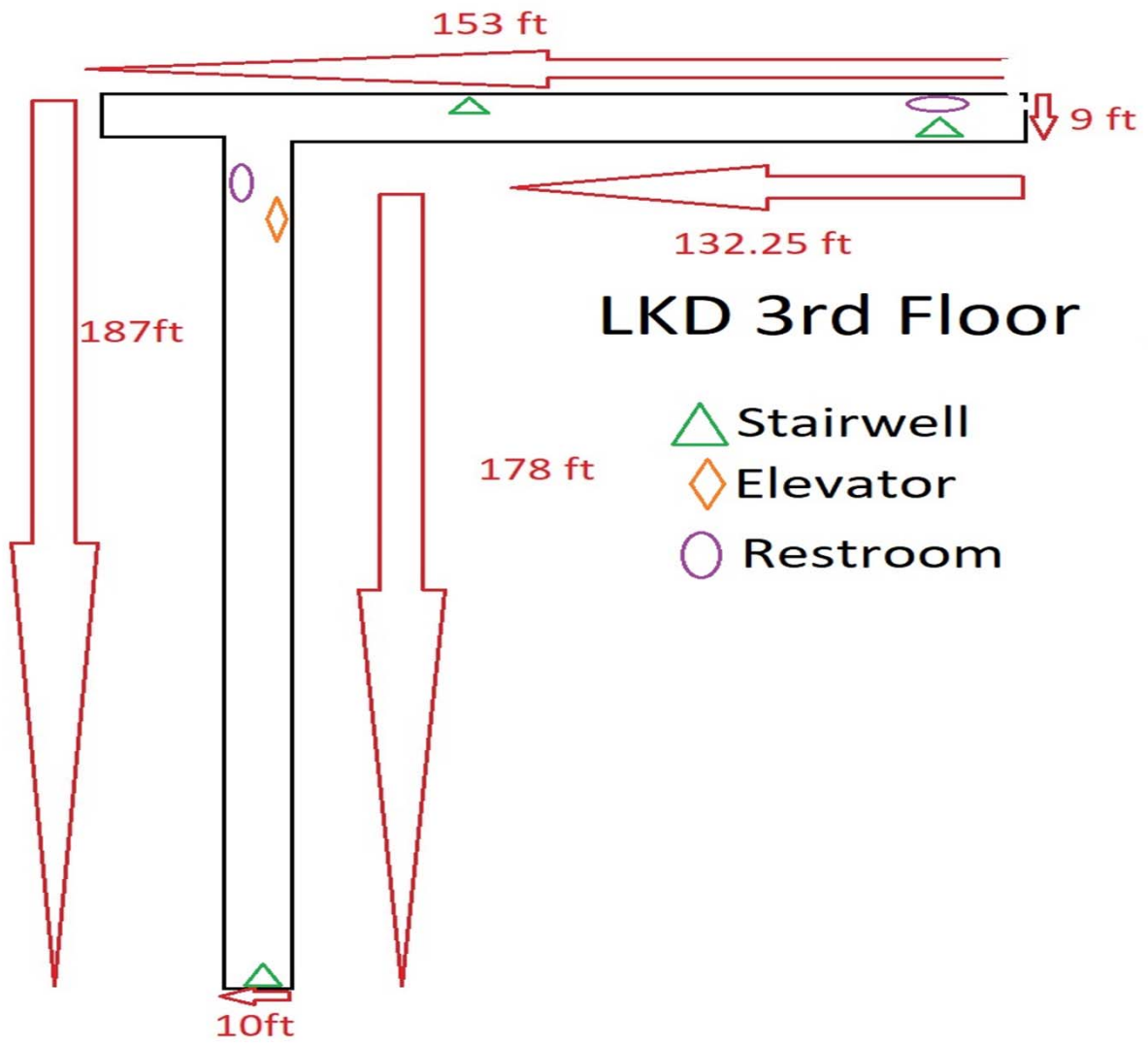
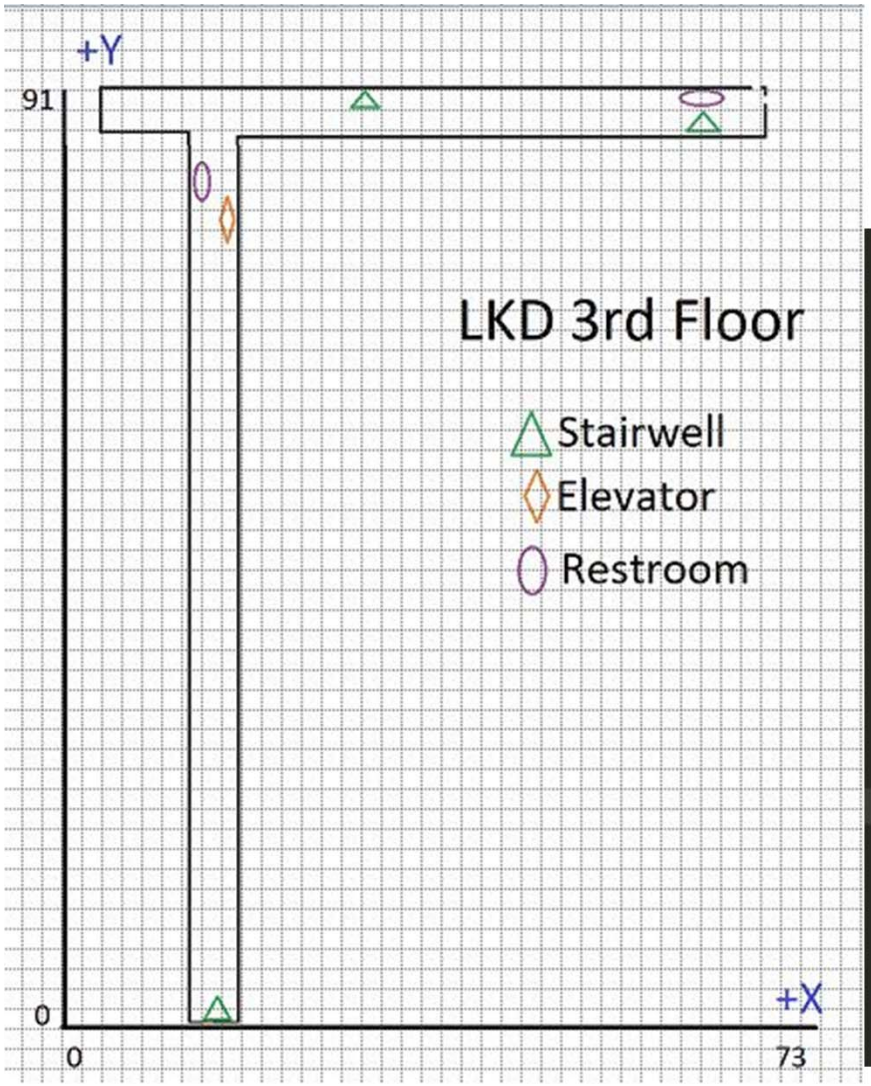
Milestone Summary

Month	Deliverables	Member in Charge	Update
March/April	2D Code Map	Conrad	Finished
	3D Model of frame	Jonathan	Decided to go forward with frame in current possession
	Network features code	Shelton	Completed webpage and server backend
	Assembled Deliveroid Frame	ALL	Need to design document compartment on current frame
	Code test bench	ALL	Currently in progress
	Code RFID/ distance sensors	Shelton/Conrad	Need to begin
	Code motor-driver board	Jonathan	Have not received board yet

Simulation Area Map





Coordinate plane and turn conditions

```
int change_direct(int end[2]){
    //conditions to progress upwards
    if (position[1] < end[1]) {
        return 1;
    }
    //conditions to progress downwards
    if (positions[1] > end[1]) {
        if (position[1] > 89) return 3;
        if ((position[0] > 4) && (position[0] < 8)) return 3;
    }
    //condition to progress rightwards
    if (position[0] < end[0]) {
        if (position[1] > 88) return 2;
        if ((position[0] > 4) && (position[0] < 8)) return 2;
    }
    //conditions to progress leftwards
    if (position[0] > end[0]) {
        if (position[1] > 88) return 3;
        if ((position[0] > 4) && (position[0] < 8)) return 3;
    }
}
```

Example Map traversal

Input
Start (5,1), End (7,21)

coordinates.txt | main.cpp

```
5 1 7 21
```

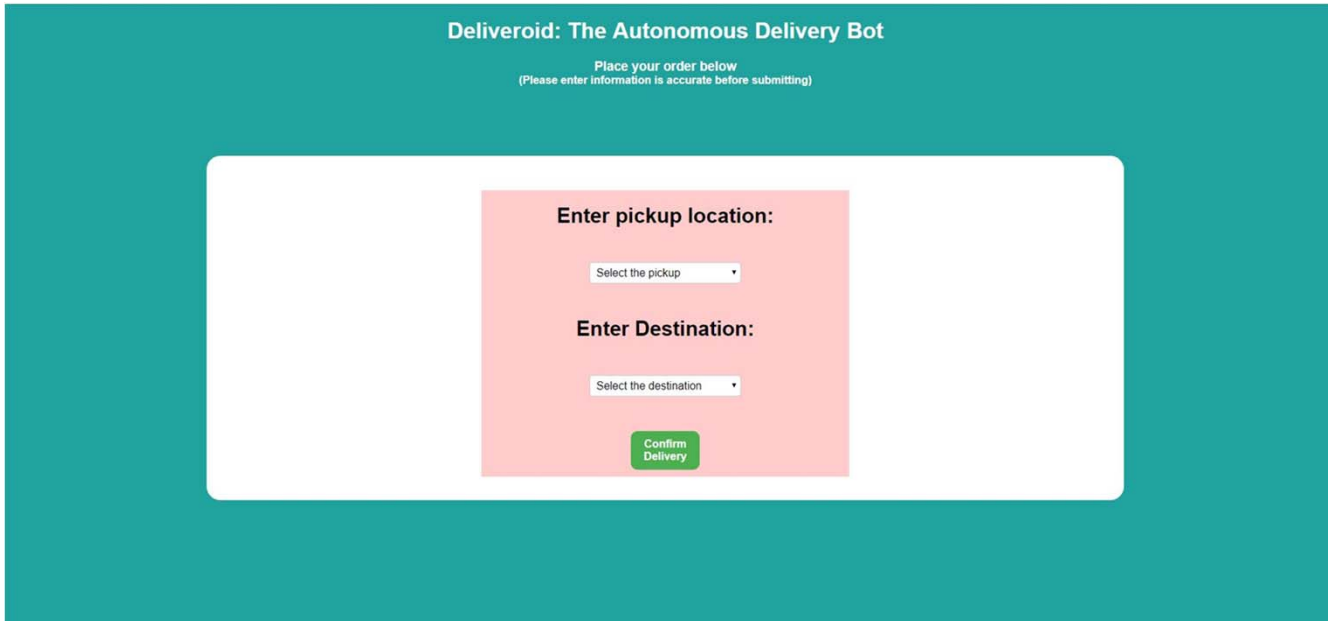
Output to terminal

```
Package source coordinates (x,y): (5,1)
Destination coordinates: (7,21)

Current Position: (5,2)

Current Position: (5,3)

Current Position: (5,4)

Current Position: (5,5)

Current Position: (5,6)

Current Position: (5,7)

Current Position: (5,8)

Current Position: (5,9)

Current Position: (5,10)

Current Position: (5,11)

Current Position: (5,12)

Current Position: (5,13)

Current Position: (5,14)

Current Position: (5,15)

Current Position: (5,16)

Current Position: (5,17)

Current Position: (5,18)

Current Position: (5,19)

Current Position: (5,20)

Current Position: (5,21)

Current Position: (6,21)

Current Position: (7,21)

Delivered
Press any key to continue . . .
```

Deliveroid Frame

Web Server Interface

- Simple form that submits data to ESP8266 web server using POST, JSON and a web browser.



Web Server Code Snippet


```
//AP Credentials
const char* ssid = "ESPTestNetwork";
const char* password = "deliveroid";

// Web server at port 80 for http
ESP8266WebServer server(80);

// const char* ssid = "MyResNet Legacy";
// const char* password = "12345678";

void setup() {
  // put your setup code here, to run once:
  Serial.begin(9600);
  pinMode(LED_PIN, OUTPUT);
  WiFi.mode(WIFI_AP_STA);
  WiFi.softAPConfig(apIP, apIP, IPAddress(255, 255, 255, 0));
  WiFi.softAP(ssid);
  // Get current IP Address (Should be 42.42.42.42
  IPAddress myip = WiFi.softAPIP();
  // Serial.print("IP Address: ");
  // Serial.println(myip);
  server.on("/", homePage);
  server.on("/newDelivery", HTTP_OPTIONS, setUpOptions);
  server.on("/newDelivery", HTTP_POST, setUpNewDelivery);
  server.begin();
```

Activity Summary

Highlights

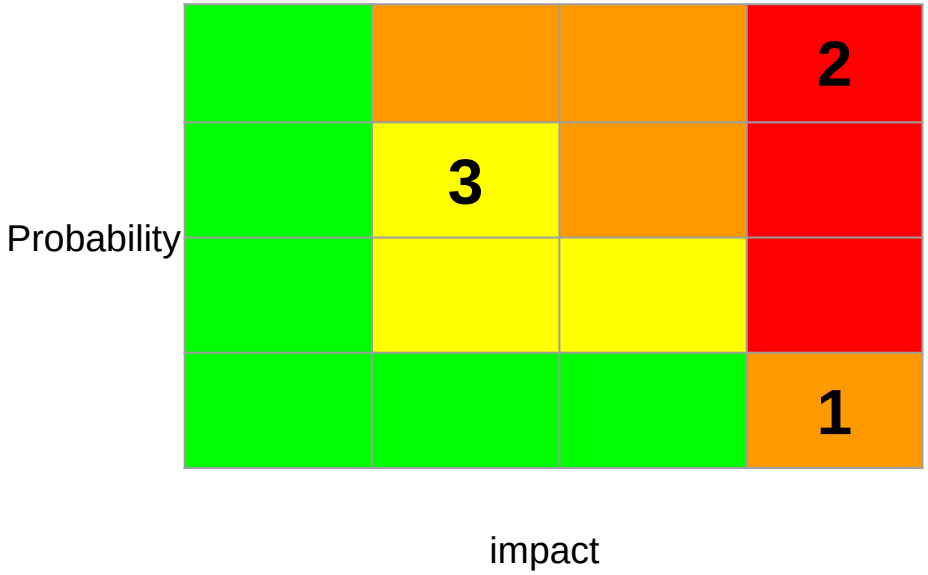
- Weekly meeting productivity
- Decided on next steps regarding frame - we are in possession of the Deliveroid frame.
- Finished server frontend and consistently working on backend.
- Coded 2D map.
- Coded navigation algorithm.

Lowlights

- Not going to make our desired frame
- Will need to increase team meeting efforts.
- Waiting on motor driver board
- Delayed delivery of other components

Risk Management

Rank	Risk	Approach
1	Unable to receive Motor Driver Board	Build our own voltage switching circuit
2	Interconnection of components with high voltages can damage components.	Check and recheck connections with peers before proceeding with higher voltage connections.
3	Code may be incomplete	Code working up to a point just need to code edge cases



Planned Activity

February	Tasks	Member in Charge
2nd - 6th	Obtain room number offices and code map dictionary	ALL
2nd- 8th	Code RFID/ distance sensors	Shelton
2nd-13th	Code Rerouting algorithms	Conrad
2nd - 8th	Determine direction for motor driver board and finish coding	Jonathan
9th - 13th	Assemble Deliveroid frame and test	ALL