

# Joshua Paul

## Software Portfolio

Github: <https://github.com/Jcpaul1226>

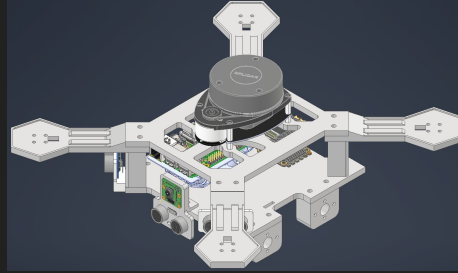
Website: <https://jcpaul1226.github.io/>

# Nasa Minds 2023 Flying UGV Senior Project

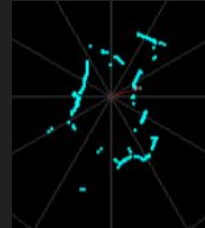
Creating a custom drone capable of both flight and ground navigation

## Methodology

- Design a flying UGV with the function of traversing both ground and air
- Alternates between two modes for desired travel method
- Autonomously navigate its surroundings with the use of sensors
- Main goal is for space exploration, for the use in to the NASA Artemis missions



Physical Hardware  
Design



Radar Detection  
with Lidar

## Ground

Ability to roam terrain on the ground using motors and wheels

## Flight

Ability to lift above the ground and maneuver in the air via propellers

## Both

Navigation via LIDAR, ultrasonic, and camera

## Hardware

- Raspberry PI 3B
- Navio2
- RPLIDAR A1
- Ultrasonic Module HC-SR04
- Raspberry PI Camera Module 3

## Interfaces

- Ardupilot
- Mission Planner
- OpenCV

## Personal Contributions:

- Leader of the sensors subsystem.
- Established Connection between Lidar sensor and Navigation System
- Utilization of Mission planner for easier software implementations and collaboration

# Blackjack w/ Python



Objective:  
Create a game of Blackjack  
with Pygame using Python

- Functions:
- Simulated “book” to test player strategy

Software

- Python
- Pygame

Interfaces

- Visual Studio Code

Skills Acquired/Enhanced:

- Object Oriented Programming through card decks
- Event handling through button clicks and timing

# Job Application Filter

## Objective:

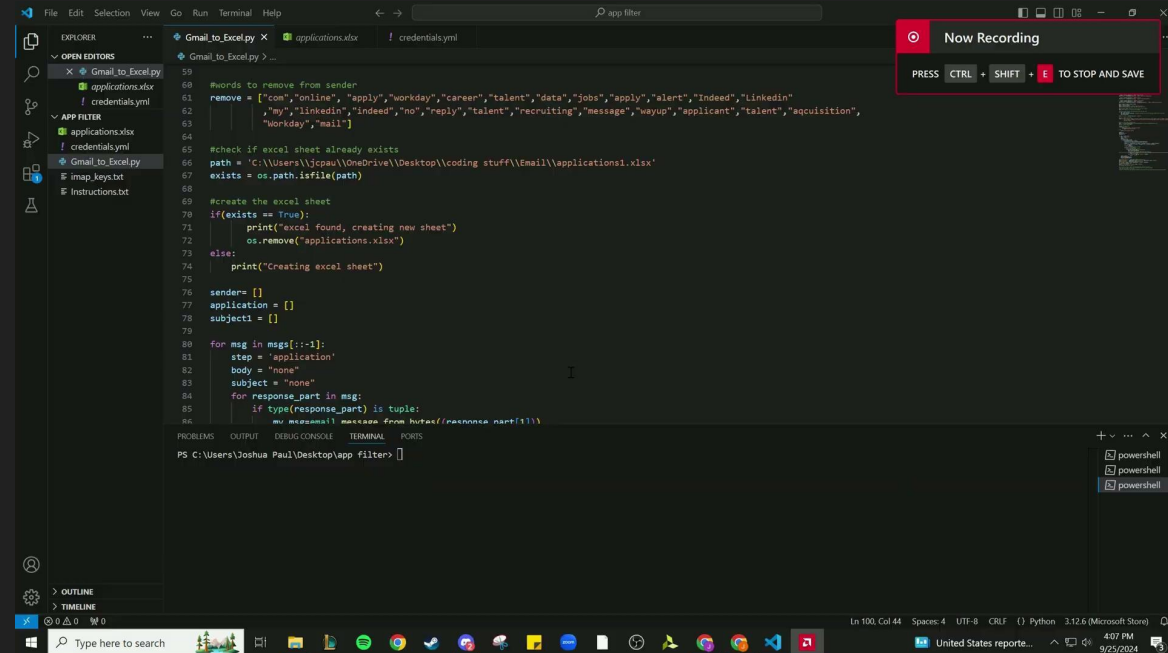
Create a Python script to parse through email service, extract all job application related emails, and sort them by application, phone screening, and interview

## Libraries:

Imaplib - connect to and search through email service

Email - handle obtain email contents  
os - allow for creation and editing of files

Pandas - handle data formulation after obtaining emails



The screenshot shows a Visual Studio Code editor with a Python script titled 'app filter'. The script is designed to filter job application-related emails from an IMAP inbox and save them to an Excel file. It includes logic to check for existing files, create new ones, and parse email content for keywords like 'application', 'interview', and 'screening'. A 'Now Recording' overlay is visible in the top right corner of the editor window. The terminal at the bottom shows the command prompt 'PS C:\Users\Joshua Paul\Desktop\app filter>'.

```
59
60 #words to remove from sender
61 remove = ["com", "online", "apply", "workday", "career", "talent", "data", "jobs", "apply", "talent", "indeed", "linkedin",
62           "reply", "linkedin", "indeed", "no", "reply", "talent", "recruiting", "message", "wayup", "applicant", "talent", "acquisition",
63           "workday", "mail"]
64
65 #check if excel sheet already exists
66 path = 'C:\Users\jcpau\OneDrive\Desktop\coding stuff\Email\applications1.xlsx'
67 exists = os.path.isfile(path)
68
69 #create the excel sheet
70 if(exists == True):
71     print("excel found, creating new sheet")
72     os.remove("applications.xlsx")
73 else:
74     print("Creating excel sheet")
75
76 senders = []
77 application = []
78 subject1 = []
79
80 for msg in msgs[1:]:
81     step = 'application'
82     body = "none"
83     subject = "none"
84     for response_part in msg:
85         if type(response_part) is tuple:
86             mv mesosmail message from hursal(response part[1])
87
88 PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
89 PS C:\Users\Joshua Paul\Desktop\app filter>
```