



MAV Group 1

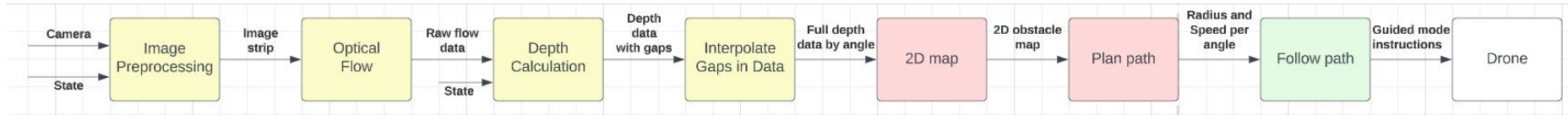
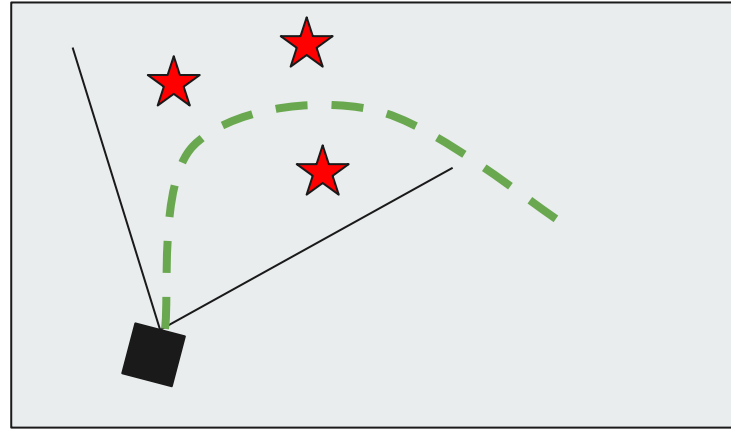


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Approach 1 - Optical Flow 1

$$Z = (V_x - u \cdot V_z - V_u \cdot V_z \cdot \Delta t) / V_u$$





Approach 2 - Colour Filtering

Methodology:

1. Pre-process camera feed
2. Learn colours to avoid
3. Set threshold
4. Don't crash :)



Step 1 - Pre-process camera feed

Rotate and crop input images to the relevant region using roll and pitch values





Step 1 - Pre-process camera feed





Step 2 - Learn colours to avoid

- DecisionTreeClassifiers: find yuv ranges for colors white, black, green..
- Thresholds: Smallest obstacles, upclose, sum color pixels



green_threshold = 8547



Step 3 - Set thresholds

- Using test footage we optimized the threshold values
- Turn when threshold value of a color is exceeded