# MAV Group 1

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# Approach 1 - Optical Flow 1

 $Z = (Vx - u \cdot Vz - Vu \cdot Vz \cdot \Delta t)/Vu$ 



Camera	Image	Image strip	Optical	Raw flow data	Depth	Depth data with gaps	Interpolate	Full depth data by angle	2D man	2D obstacle map	Plan path	Radius and Speed per angle	Follow path	Guided mode	Drone
State	Preprocessing		Flow	State	Calculation		Gaps in Data		20 map		Plan paul		r oliow paur		



# 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



## **Step 3 - Set thresholds**

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