

# UAV Ground Detection

**Distinguish Tree Species**

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**Project 17**

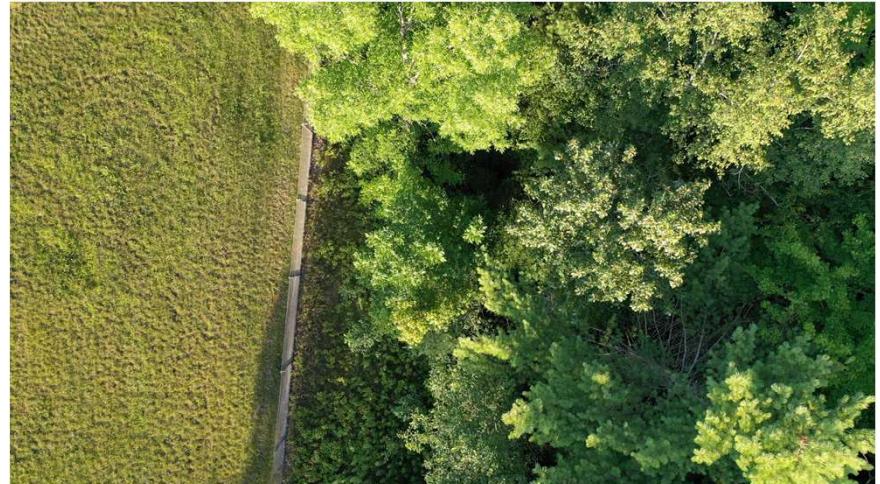


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# Data

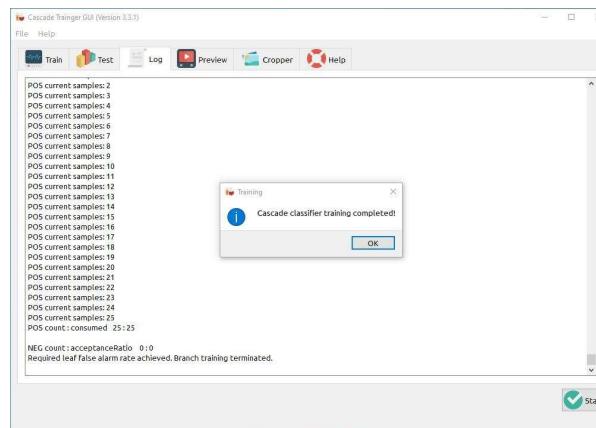
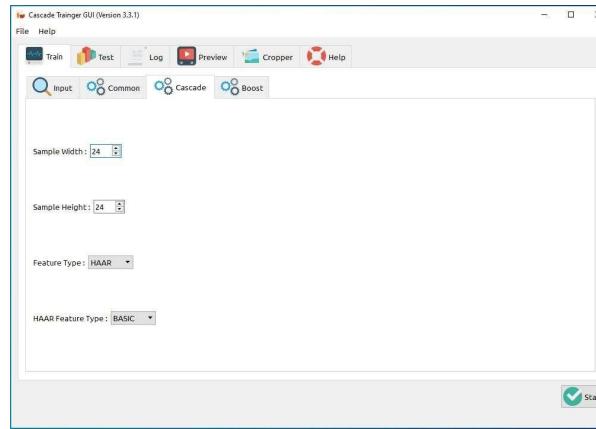
The video capture shot we get from Purdue



# Classify Data

```
1 import os
2 import re
3 import time
4 import cv2
5 import numpy as np
6 from os.path import isfile, join
7
8 tree_classifier = cv2.CascadeClassifier('<Cascade_File_Path>')
9
10 cap = cv2.VideoCapture('<Video_File_Path>')
11
12 while True:
13     time.sleep(.05)
14     ret, frame = cap.read()
15     gray = cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY)
16     trees = tree_classifier.detectMultiScale(gray, 1.3, 5)
17     for (x, y, w, h) in trees:
18         cv2.rectangle(frame, (x, y), (x+w, y+h), (0,0,255), 2)
19         cv2.imshow('Trees', image)
20     #cv2.namedWindow('Trees', cv2.WINDOW_NORMAL) #optional
21     #cv2.resizeWindow('Trees', 1900, 1000) #optional
22     cv2.waitKey(1)
23
24 cap.release()
25 cv2.destroyAllWindows()
```

Detecting images from video



CascadeTrainer

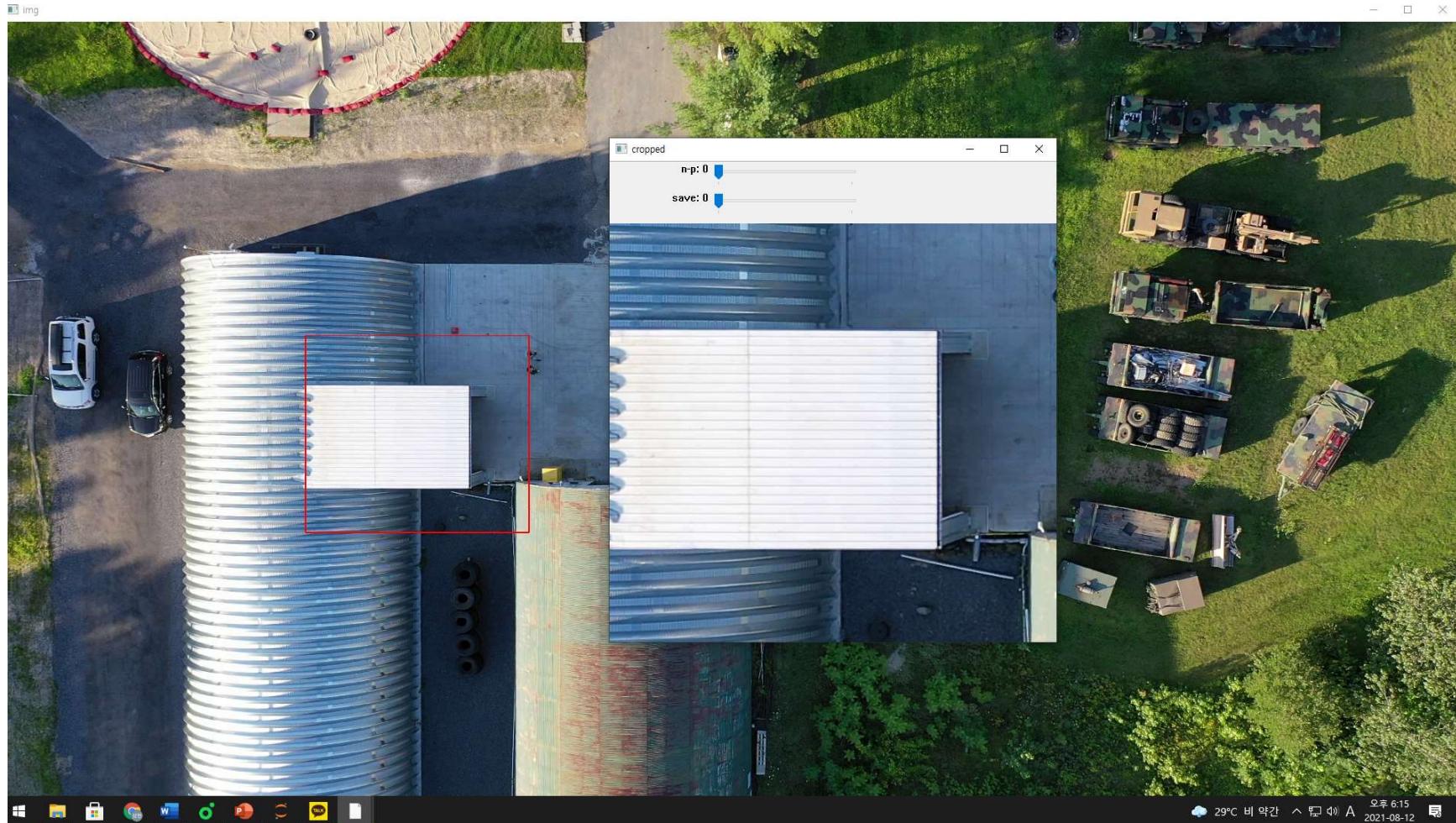
# *Image Labeling*



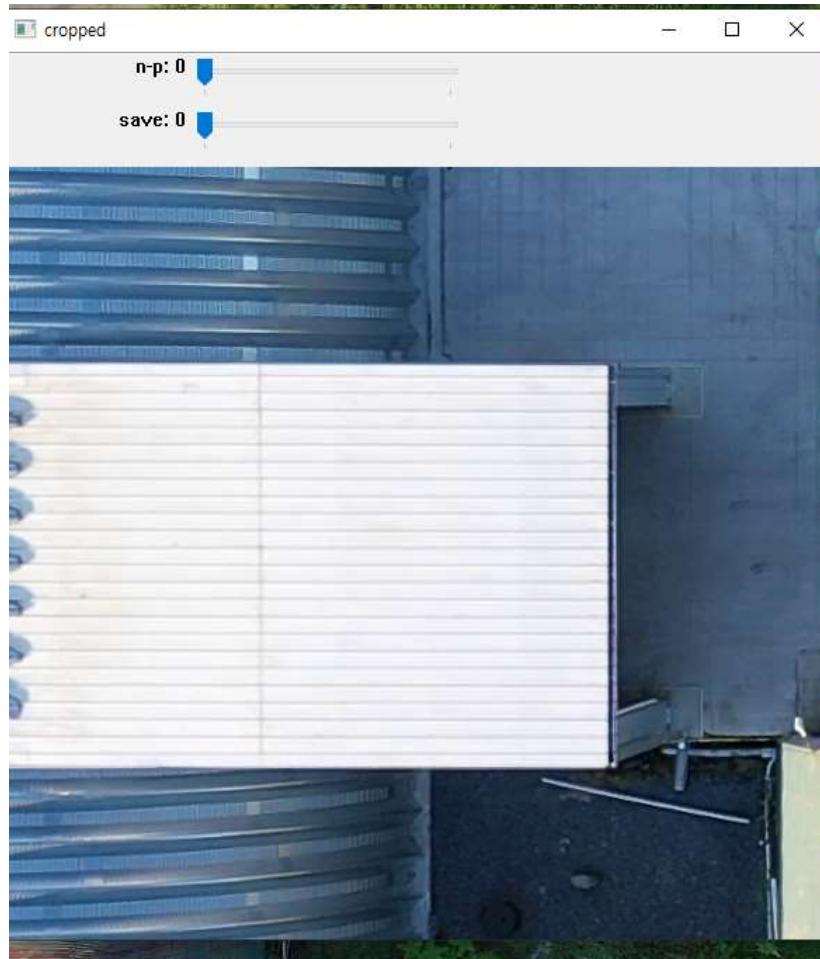
Positive

Negative

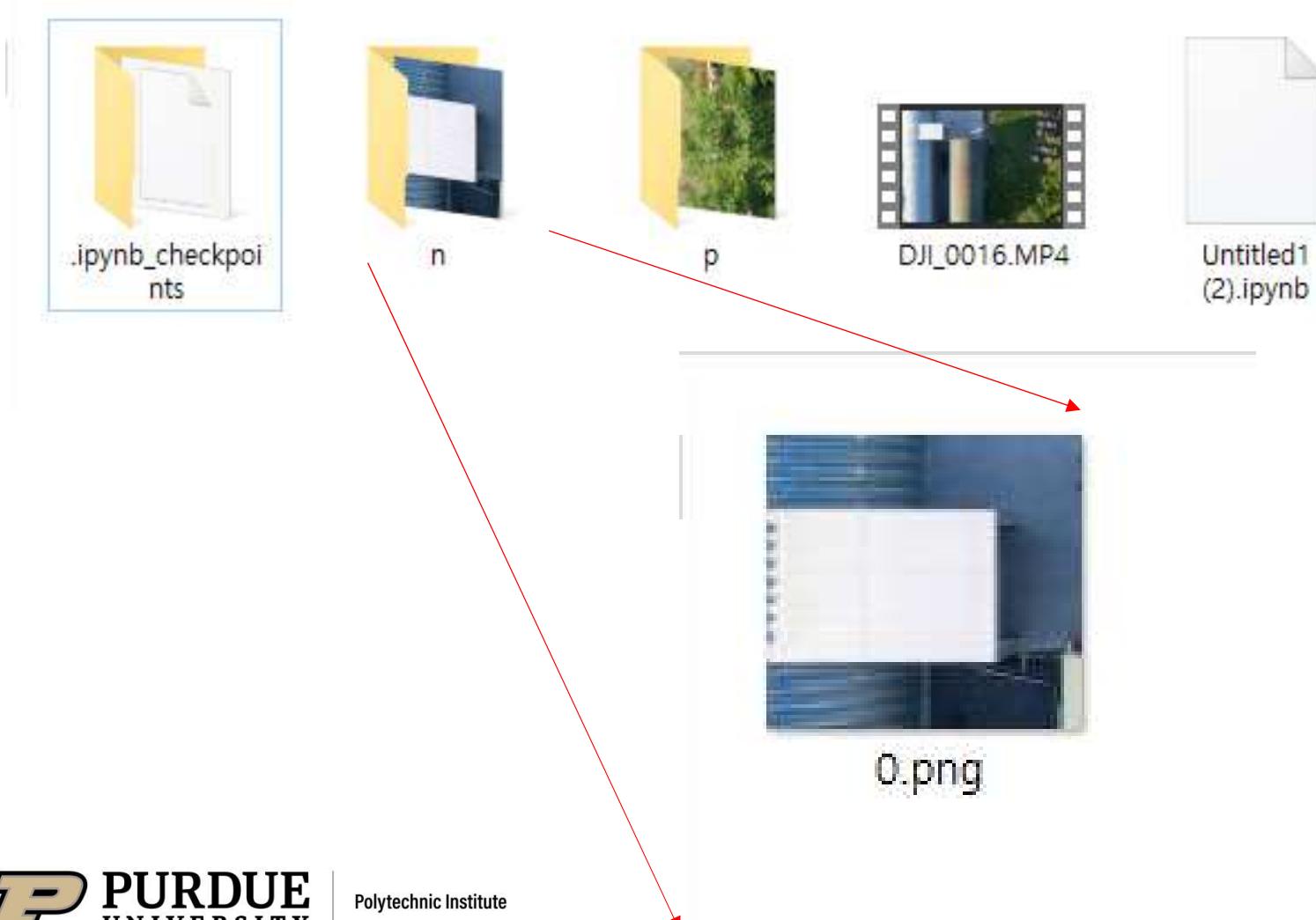
# Making data set



# *Making data set*

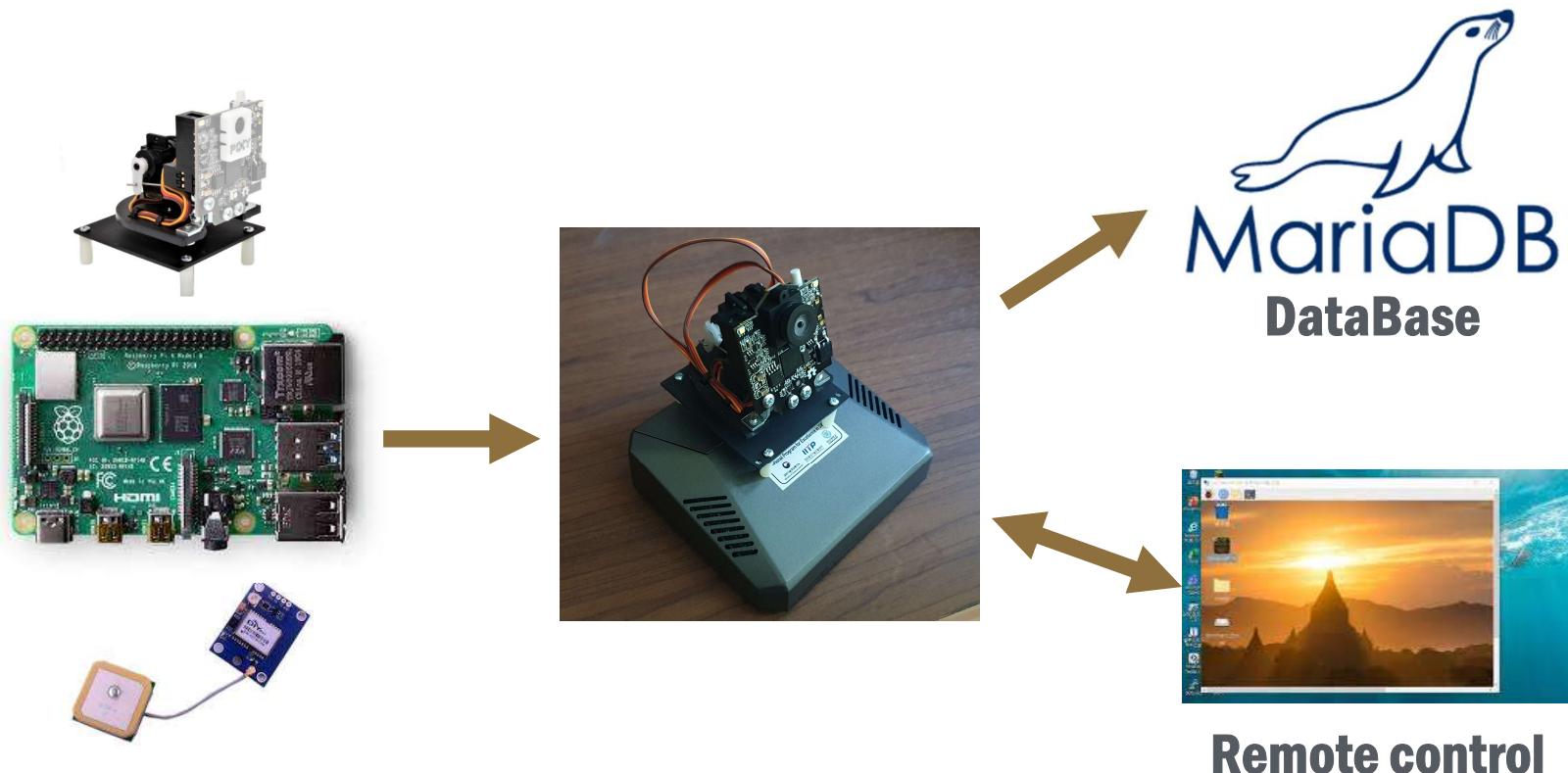


# *Making data set*

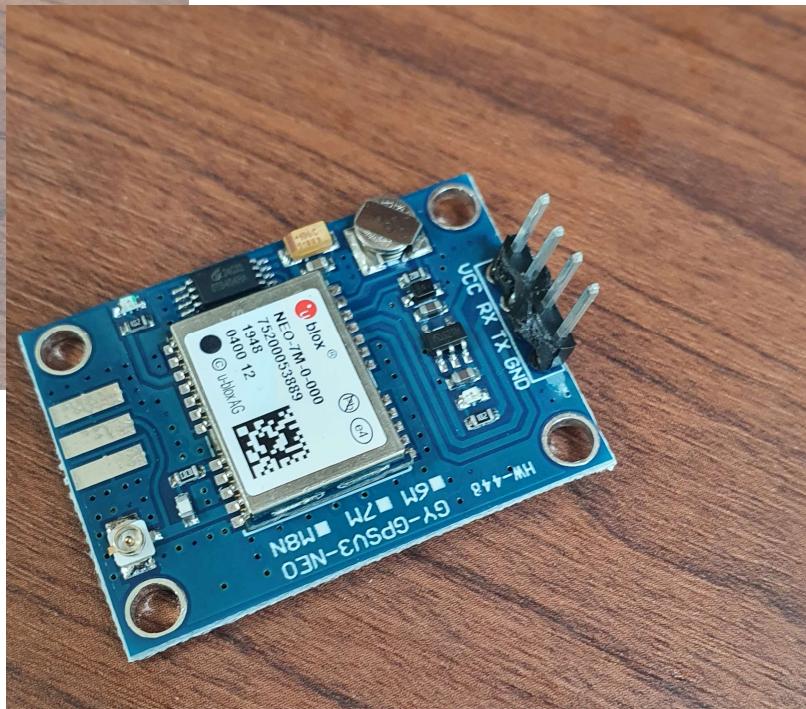
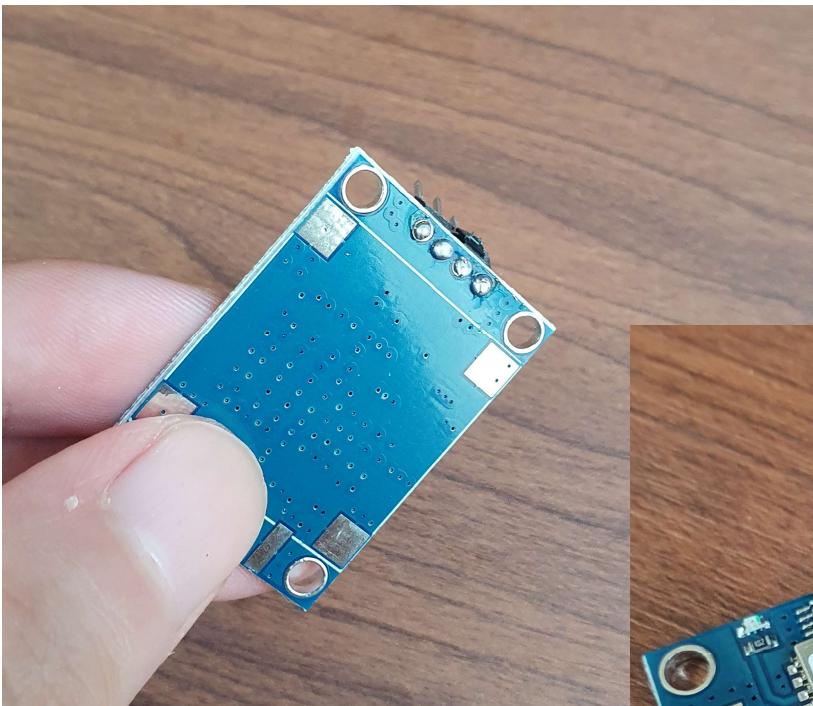


# NEXT

## Real time communication



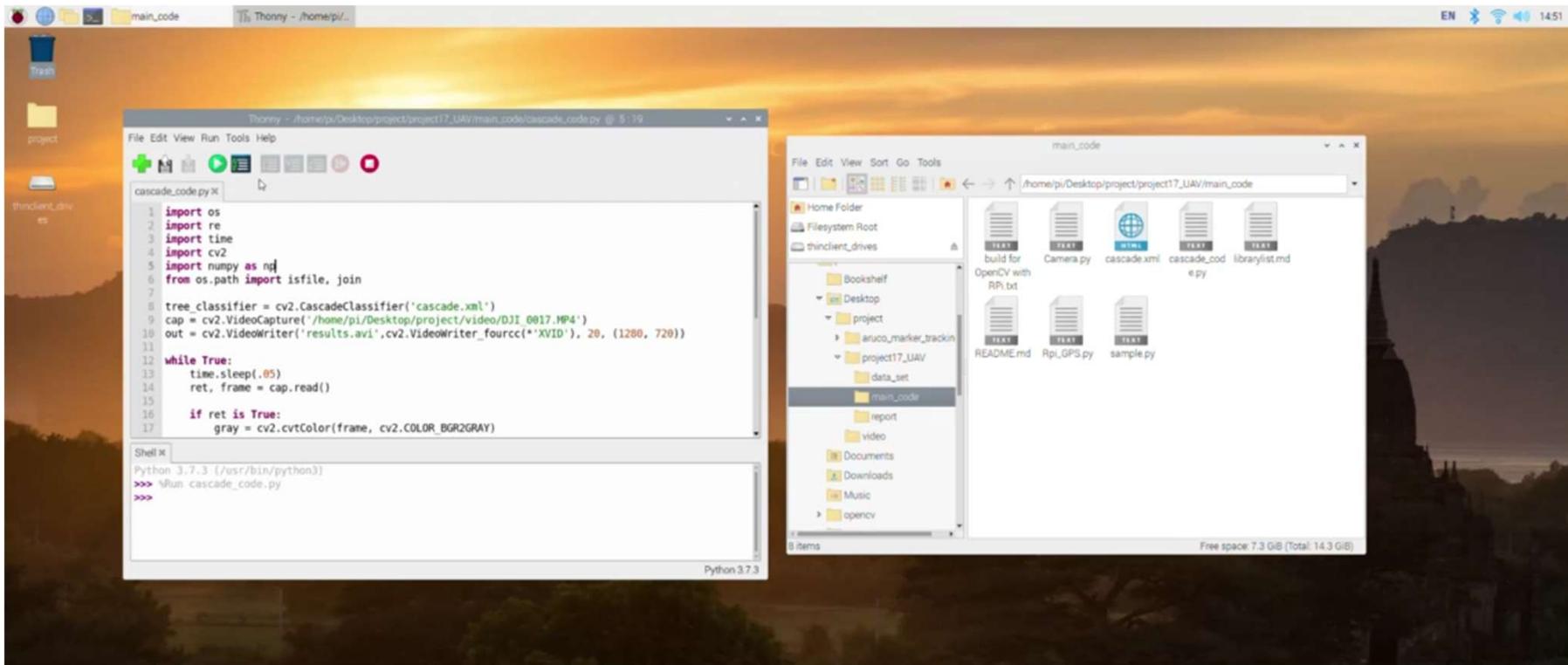
# *GPS module*



# Raspberry Pi with GPS



# Raspberry Pi with ML model



# *Our plan*

Model is too slow in Raspberry Pi



Take pictures at regular intervals without recording a video



Save to DB

# *Thank you*

**Questions?**

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