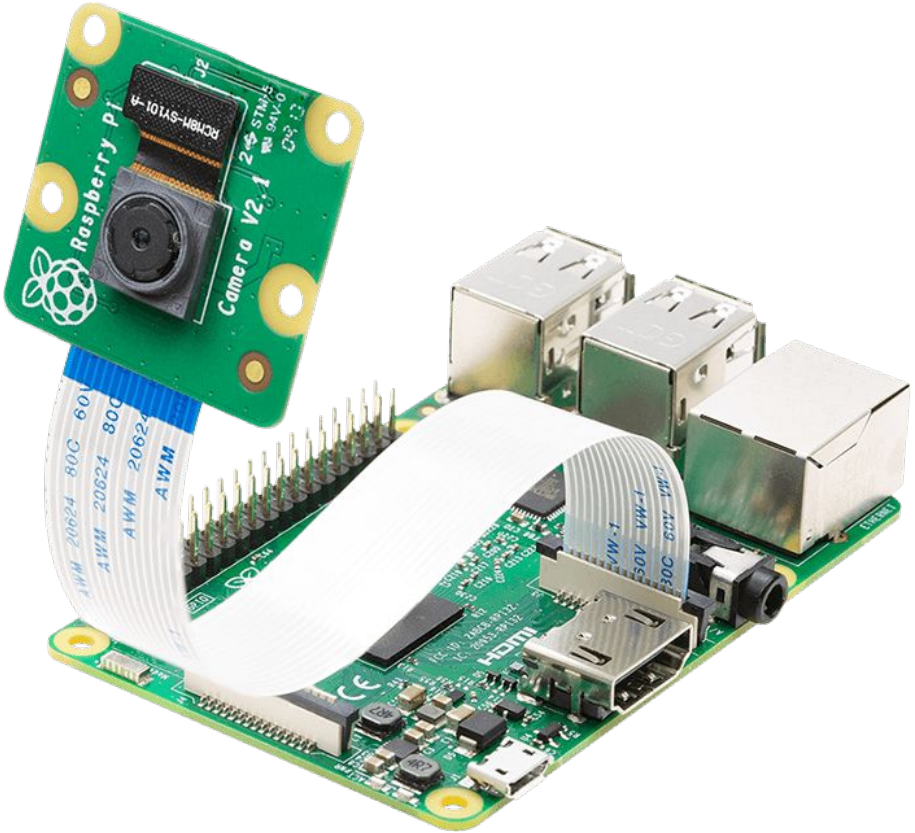
Backyard BirdBot

Racer 4

Hardware

- Raspberry pi
- Pi Cam
- SD card
- keyboard & mouse
- TV

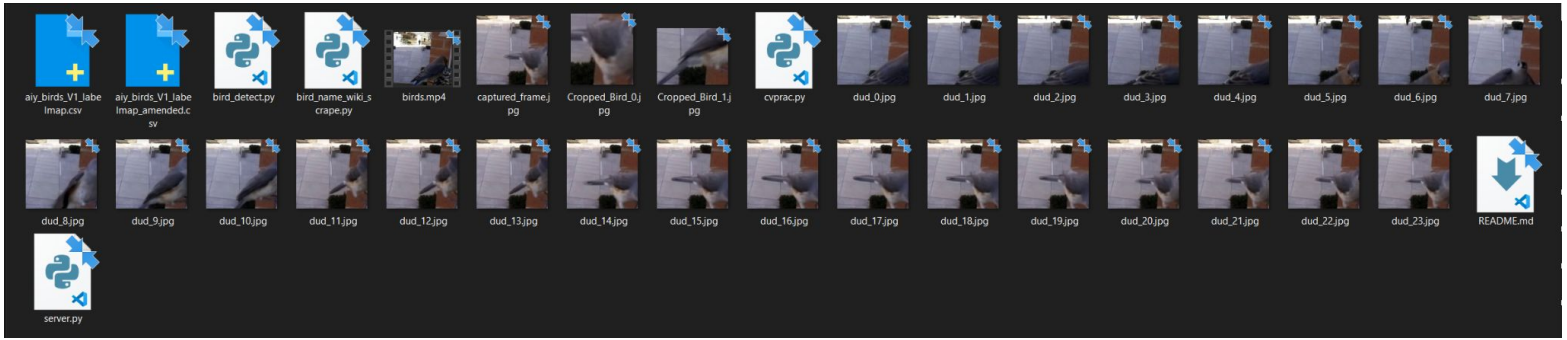


Working Code

- Added code to get SSL to work after installing python 3.7.9
- Added benchmarking code using psutils to capture RAM and CPU usage during running
- Added multiprocessing using python's multiprocessing library to run main code along with benchmarking

What We Implemented

- Python 3.7, TensorFlow
- Some benchmarking



What We Implemented

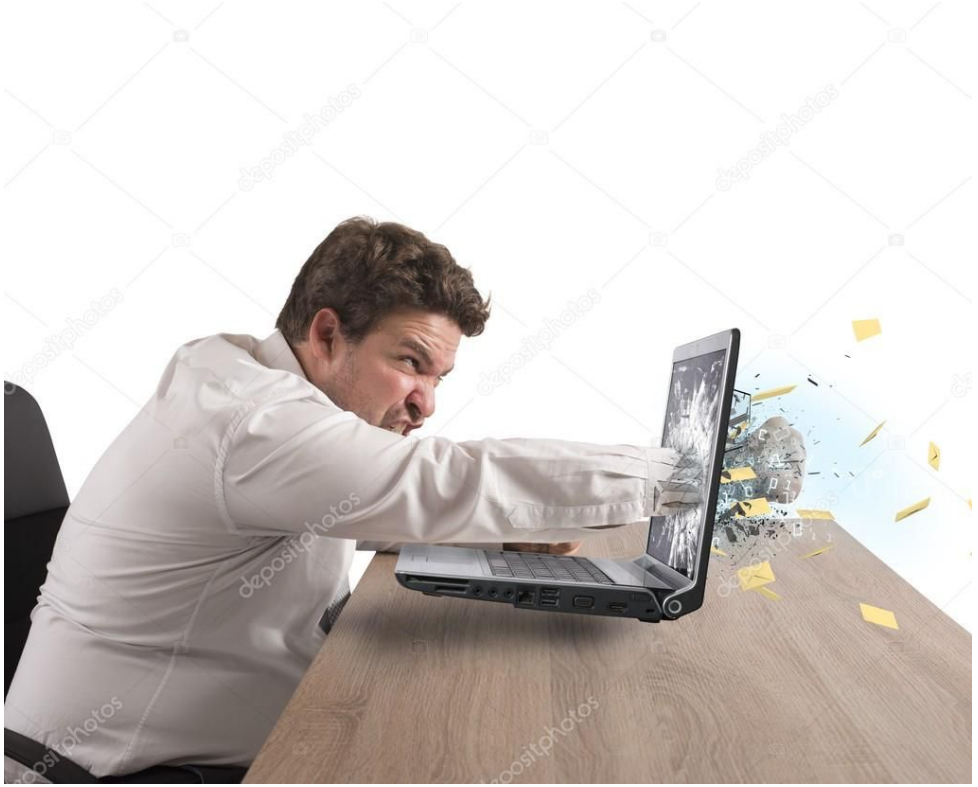
```
Models loaded!
[DETECTED BIRD] 15:39 : CPU => 12.4 %; RAM => 28.34 %; FPS => 65.0 / 8583.0
Bird detected but no species identification.
```

```
[CLASSIFYING BIRD] 17:46 : CPU => 14.7 %; RAM => 42.42 %; FPS => 697.0 / 8583.0
I have found a bird! I think it's a Tufted titmouse (93.9%)
[DETECTED BIRD] 17:46 : CPU => 13.4 %; RAM => 42.45 %; FPS => 698.0 / 8583.0
[CLASSIFYING BIRD] 17:46 : CPU => 12.3 %; RAM => 42.49 %; FPS => 698.0 / 8583.0
I have found a bird! I think it's a Tufted titmouse (81.6%)
[DETECTED BIRD] 17:46 : CPU => 12.8 %; RAM => 42.24 %; FPS => 701.0 / 8583.0
[CLASSIFYING BIRD] 17:46 : CPU => 11.4 %; RAM => 42.42 %; FPS => 701.0 / 8583.0
I have found a bird! I think it's a Tufted titmouse (81.6%)
[DETECTED BIRD] 17:46 : CPU => 10.8 %; RAM => 42.38 %; FPS => 702.0 / 8583.0
[CLASSIFYING BIRD] 17:46 : CPU => 10.7 %; RAM => 42.39 %; FPS => 702.0 / 8583.0
I have found a bird! I think it's a Tufted titmouse (92.1%)
[DETECTED BIRD] 17:47 : CPU => 11.4 %; RAM => 42.34 %; FPS => 703.0 / 8583.0
[CLASSIFYING BIRD] 17:47 : CPU => 11.8 %; RAM => 42.39 %; FPS => 703.0 / 8583.0
I have found a bird! I think it's a Tufted titmouse (91.7%)
[DETECTED BIRD] 17:47 : CPU => 10.4 %; RAM => 42.31 %; FPS => 704.0 / 8583.0
[CLASSIFYING BIRD] 17:47 : CPU => 12.1 %; RAM => 42.27 %; FPS => 704.0 / 8583.0
I have found a bird! I think it's a Tufted titmouse (90.9%)
[DETECTED BIRD] 17:47 : CPU => 12.8 %; RAM => 42.34 %; FPS => 705.0 / 8583.0
[CLASSIFYING BIRD] 17:47 : CPU => 11.2 %; RAM => 42.24 %; FPS => 705.0 / 8583.0
I have found a bird! I think it's a Tufted titmouse (91.0%)
[DETECTED BIRD] 17:47 : CPU => 11.9 %; RAM => 42.31 %; FPS => 706.0 / 8583.0
[CLASSIFYING BIRD] 17:47 : CPU => 13.6 %; RAM => 42.49 %; FPS => 706.0 / 8583.0
I have found a bird! I think it's a Tufted titmouse (95.1%)
[DETECTED BIRD] 17:47 : CPU => 10.8 %; RAM => 42.35 %; FPS => 707.0 / 8583.0
[CLASSIFYING BIRD] 17:47 : CPU => 11.2 %; RAM => 42.43 %; FPS => 707.0 / 8583.0
I have found a bird! I think it's a Tufted titmouse (90.4%)
[DETECTED BIRD] 17:47 : CPU => 12.5 %; RAM => 42.45 %; FPS => 708.0 / 8583.0
[CLASSIFYING BIRD] 17:47 : CPU => 10.7 %; RAM => 42.42 %; FPS => 708.0 / 8583.0
I have found a bird! I think it's a Tufted titmouse (40.2%)
```

Technical Difficulties

A lot of things

- Connecting to the two school Wifis
- Had difficulties installing Pi Camera
- Had difficulties setting up Raspberry Pi
- Had difficulties installing TensorFlow
- Time crunch
- Lack of guide from the birdbot creators
- Lack of memory on the Pi to run the code



Conclusion

- Difficult project
- Very little guidance
- Ran into many technical difficulties
- Valuable experience.