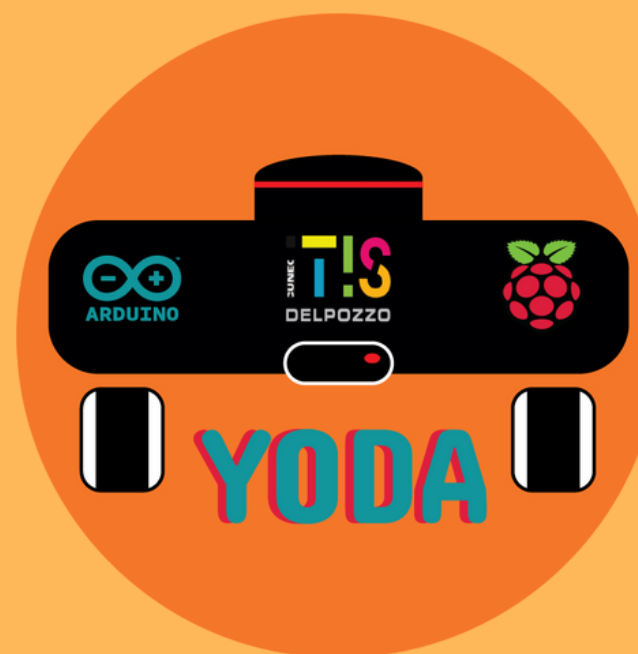


YODA

Yoda Object Detector and Avoider



<https://github.com/FrancescoGiraud0/Yoda>



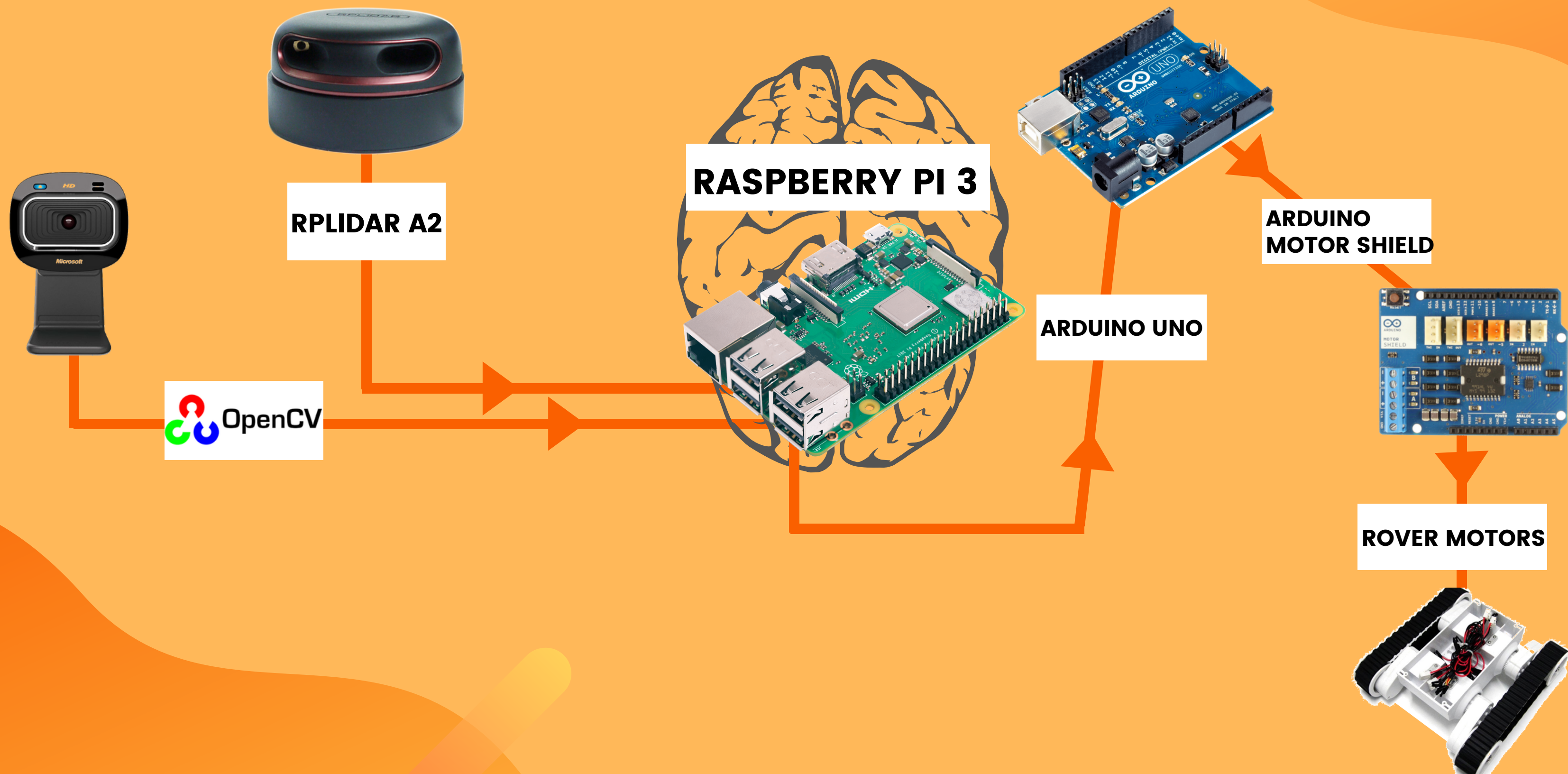
What is Yoda?

Yoda is the final result of an internship project that we did at school.

Our goal was to combine rplidar and computer vision (opencv) in order to create a robot capable of tracking colored objects and avoid obstacles.

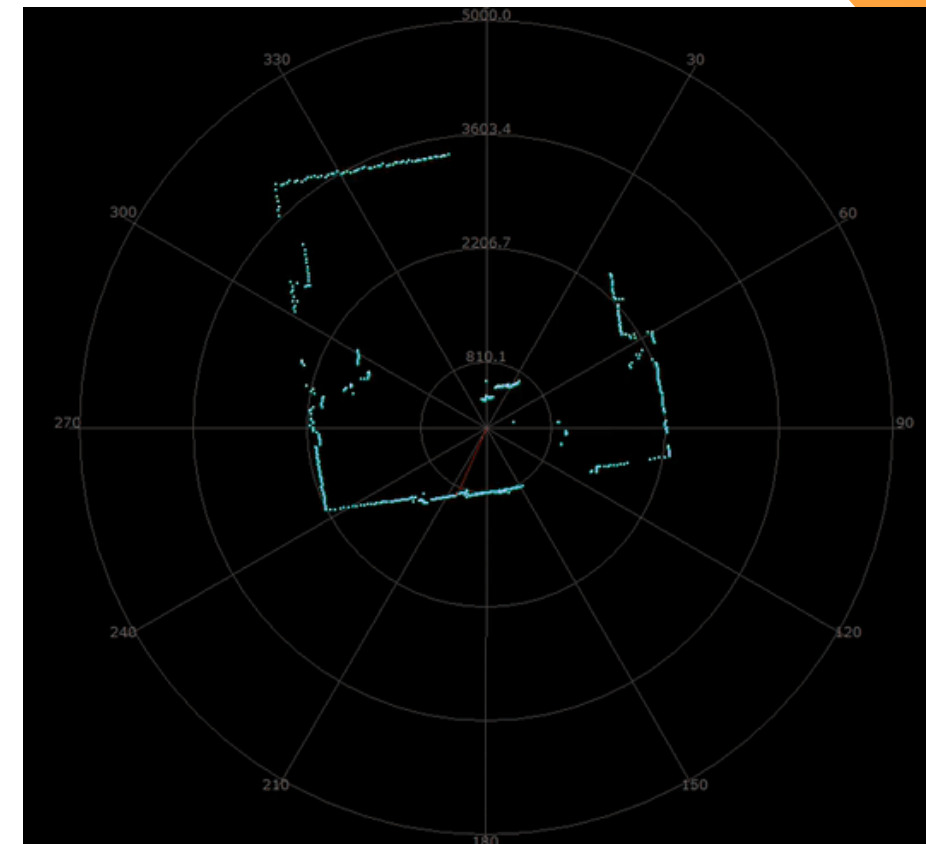
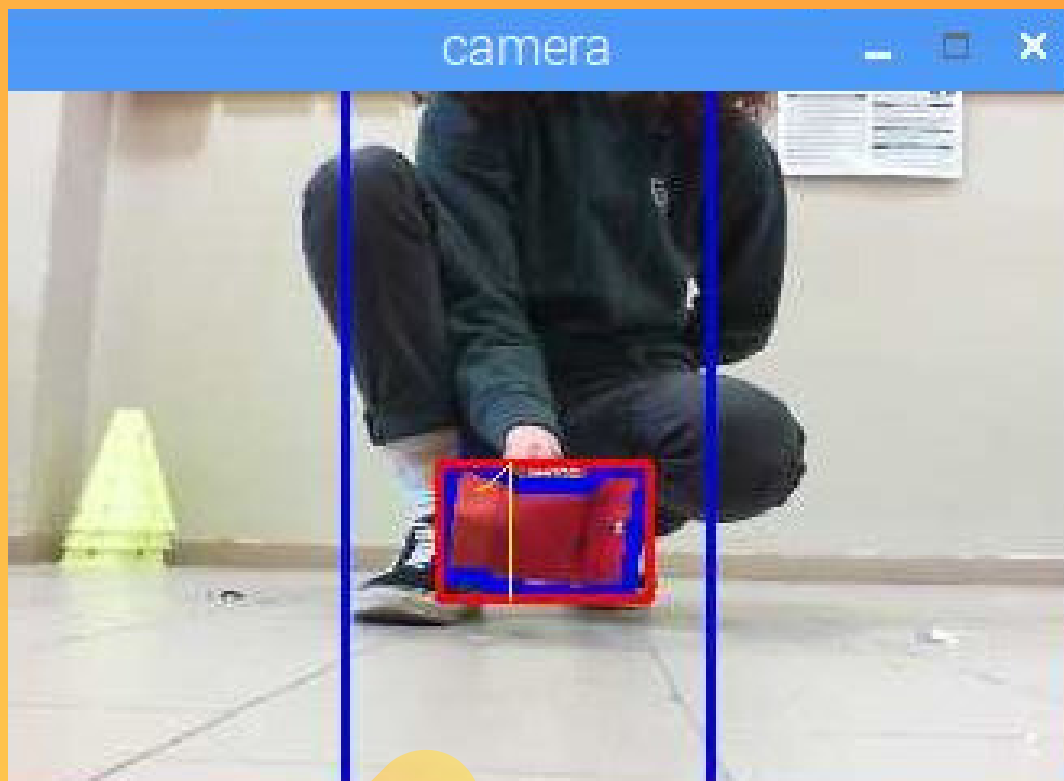


Technologies



Object Detection

Yoda detect a red colored object using OpenCV module and determines where is the object (left, center, right)

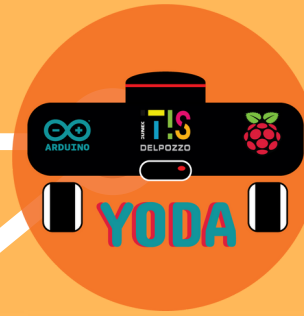


Obstacle Avoiding

Yoda process data received from lidar using RPLidar module and determines where are obstacles in front of it (left, center, right)

The Software

OBJECT DETECTOR



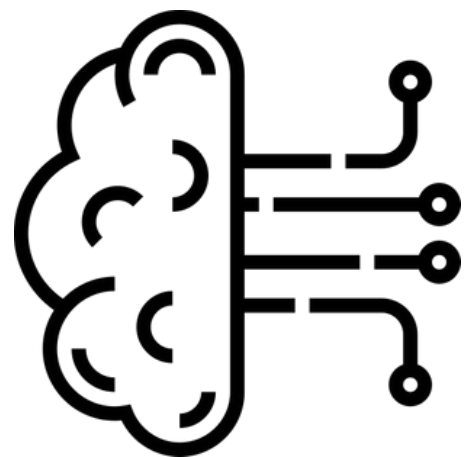
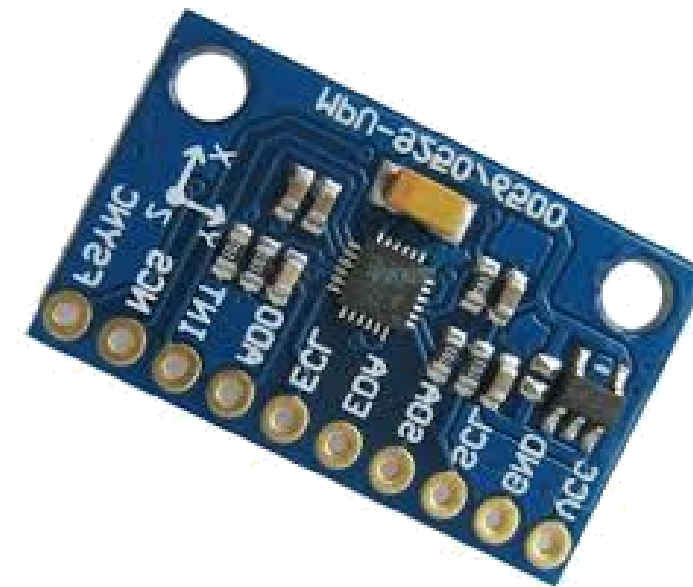
OBSTACLE AVOIDER

```
{
  "000":
    { "000":stops, "001":stops, "010":stops, "011":stops,
      "100":stops, "101":stops, "110":stops, "111":stops },
  "001":
    { "000":turnRight, "001":stops, "010":turnRight, "011":stops,
      "100":turnRight, "101":stops, "110":turnRight, "111":stops },
  "010":
    { "000":goForward, "001":goForward, "010":stops, "011":stops,
      "100":goForward, "101":goForward, "110":stops, "111":stops },
  "100":
    { "000":turnLeft, "001":turnLeft, "010":turnLeft, "011":turnLeft,
      "100":stops, "101":stops, "110":stops, "111":stops }
}
```

Future Developments

Add an Accelerometer

We want to add an accelerometer, the MPU6050, to get more data from the robot like acceleration, speed, direction, etc.



Artificial Intelligence

Create an AI version of the robot using scikit-learn python module. We have just started working on it.

Development Team

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