Object Tracking Robot

ViSION Project Exhibition 2019

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PROBLEM STATEMENT

- The major drawback faced by modern surveillance devices is it need human assistance which is easily distracted so we need a device which can autonomously monitor the surrounding

AGENDA

- Introduction
- Project Overview
- Technology used
- Prototype
- Conclusion
- References

INTRODUCTION

- We made this project as a basic prototype for a bot which can sense colour shape and size of an object and distinguish between various features of the object
- Basically this project focuses on tracking a ball by using camera to take frames and do image processing to track it down by using its size, shape, and colour.

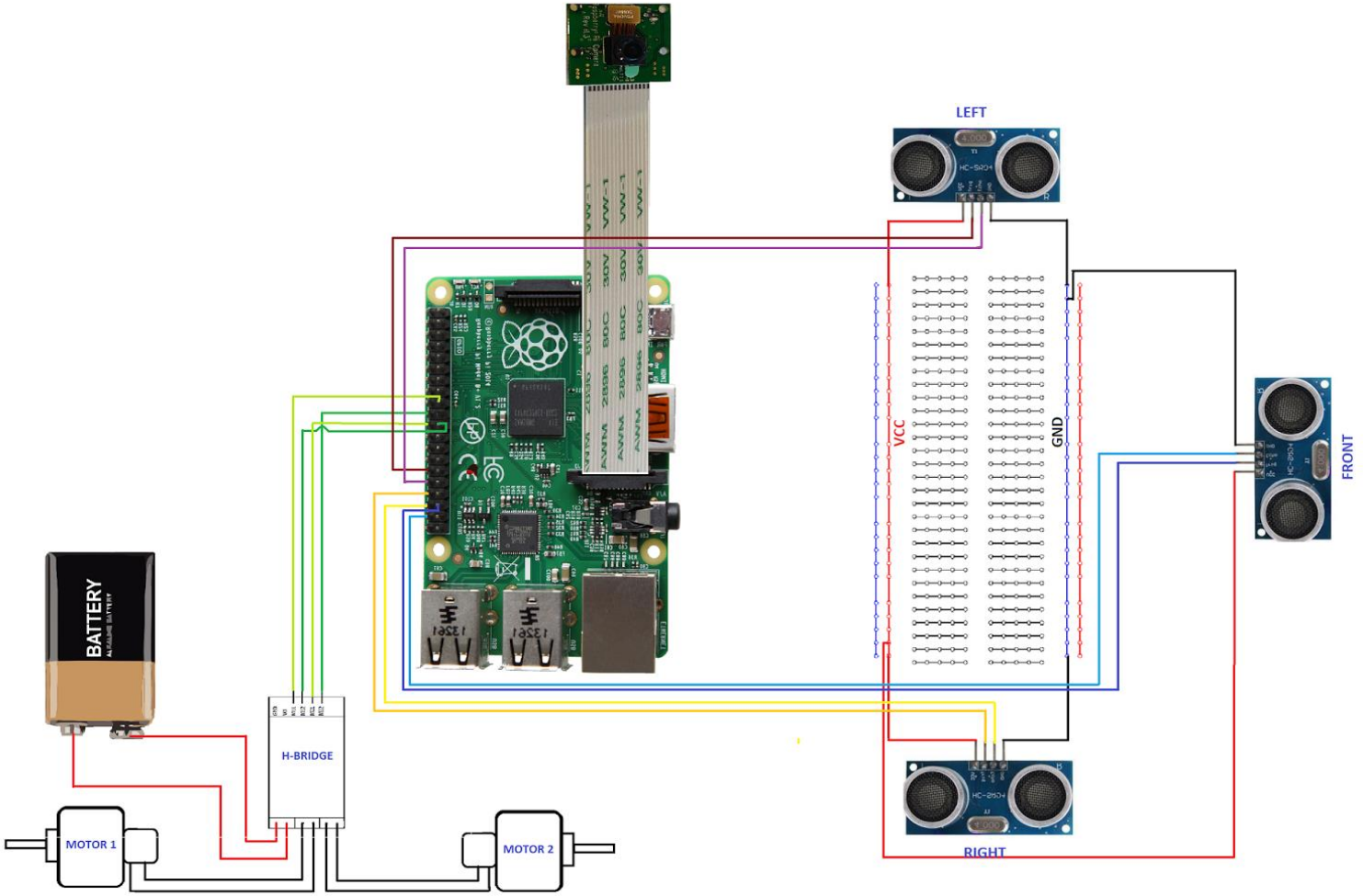
PROJECT OVERVIEW

- Here we've used Raspberry pi as micro controller as it supports Raspberry pi camera module and Python as coding language, we used OpenCV library for image analysis.
- We used H-Bridge to control the motor and direction and speech in different situations are controlled via code.

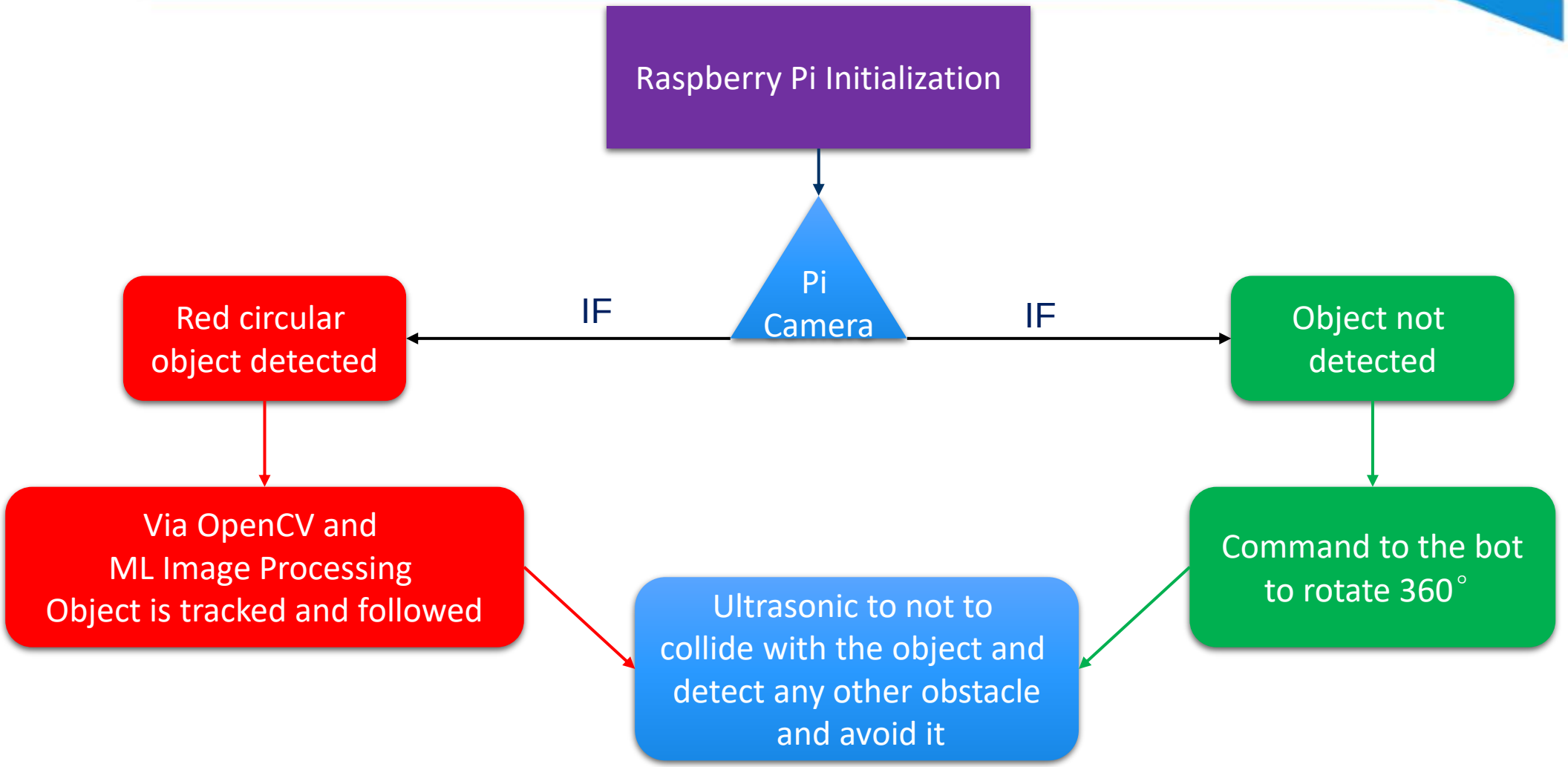
TECHNOLOGY USED

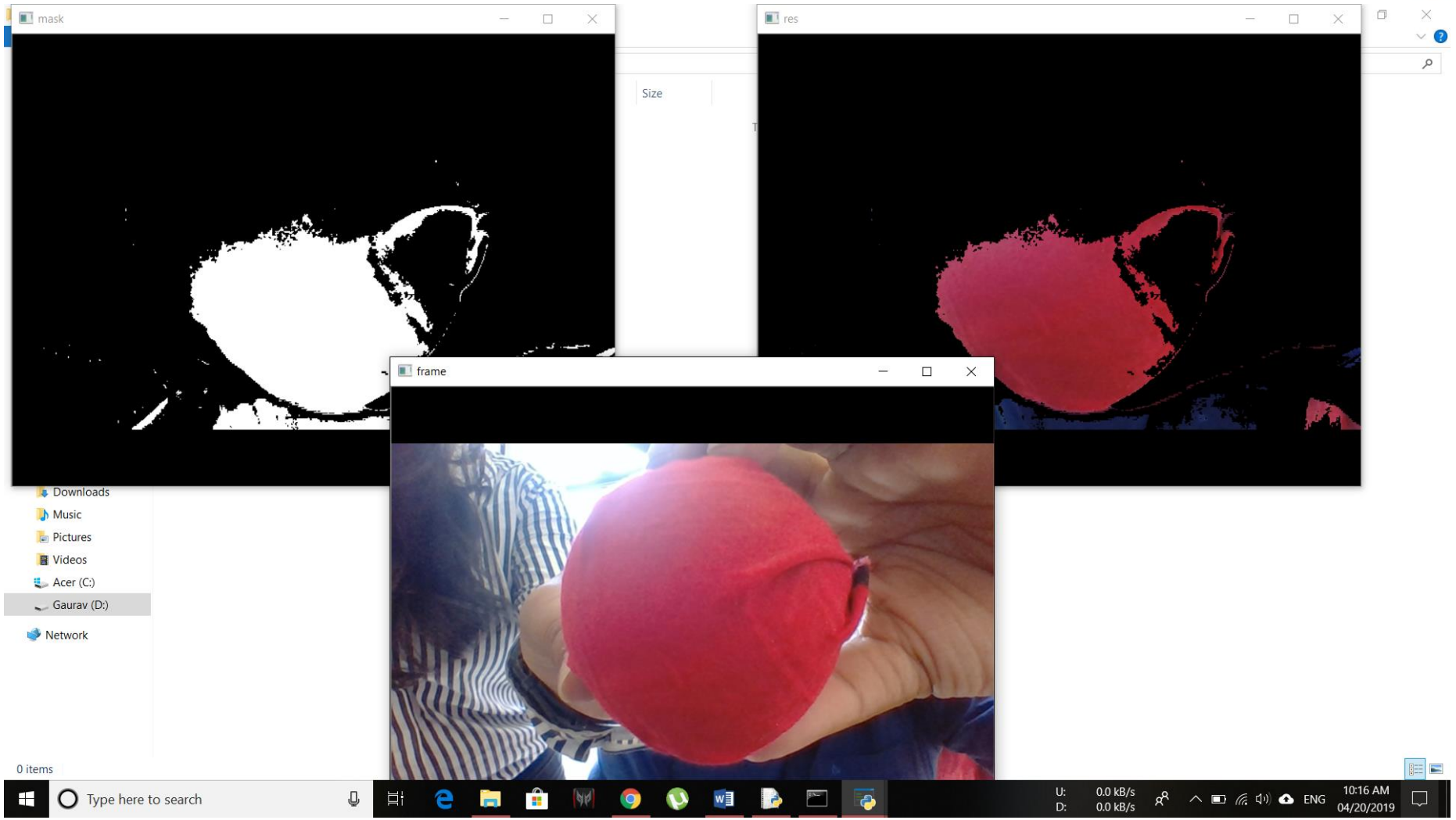
Sr. No.	Name of Component	Specification	Qty
1	Raspberry Pi	2 Model B	1
2	Raspberry Pi Camera Module	5 MP	1
3	Arduino Ultrasonic Sensor	-	3
4	Dual H-Bridge Motor Driver	L298	2
5	DC Motor	-	2
6	Breadboard	-	1
7	Connecting Wires	-	-

Circuit Diagram



FLOW CHART


Raspberry Pi Initialization
Pi Camera
IF
IF
Red circular object detected
Object not detected
Via OpenCV and ML Image Processing Object is tracked and followed
Command to the bot to rotate 360°
Ultrasonic to not to collide with the object and detect any other obstacle and avoid it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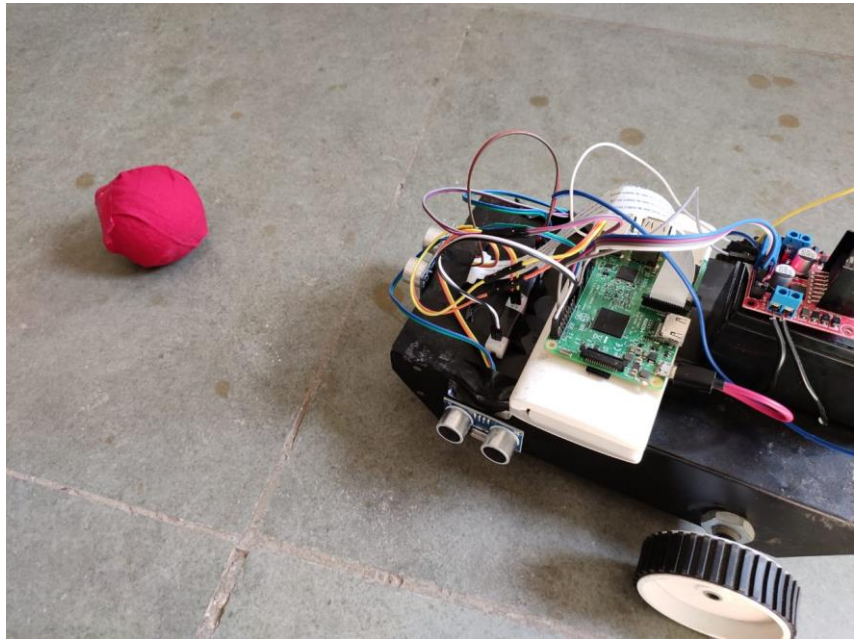
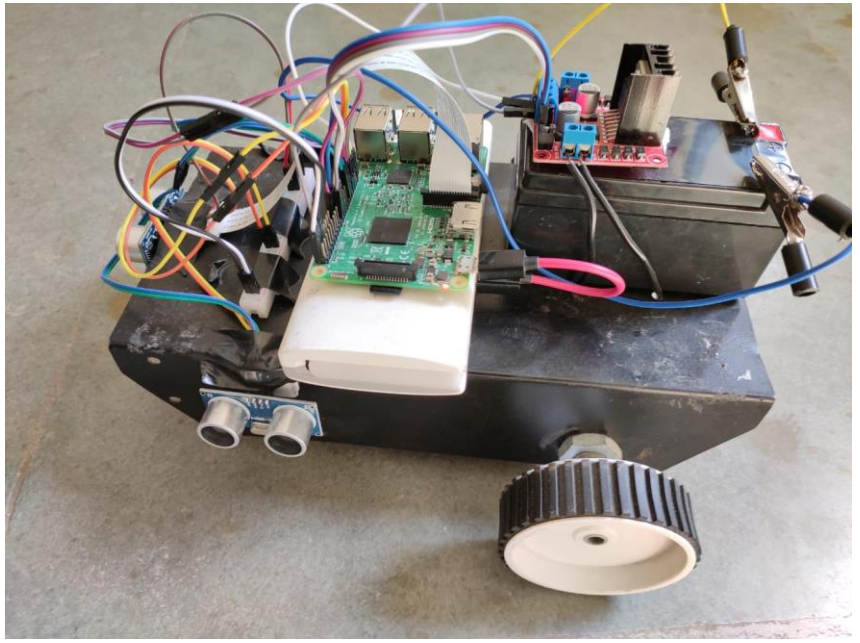
04/20/2019

PROTOTYPE





ADVANTAGES

- No human controlling is needed.
- Specific objects can be tracked.
- Better surveillance.

APPLICATIONS

- Autonomous surveillance.
- Can be used as child monitoring system.
- Can work as a spy.
- Person following Suitcase/Drone/Robot.
- Pet/Wildlife tracker.
- Robot Pet.

CONCLUSION

- This device can be an excellent and hassle free replacement for our regular surveillance system which is only restricted to one specific area.

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- Park, J.-W., Park, J.-H., Yun, K.-S., Lee, J.-M.: Tracking and Capturing a Moving Object Using Active Camera Mounted on a Mobile Robot. The Institute of Control, Robotics and Systems 7(9) (September 2001)
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THANK YOU