



Students Seminar Organized by The Robotic Society JMI Chapter



IOT BASED ROBOT

AUTHORS : Nirmal Gupta 15BME0051 Umair Hussain 15BME0055 Yasir Ashfaq 15BME0056

Abstract

The purpose of this poster is to demonstrate the synergistic combination of the IOT with a robot with an interface board of the Raspberry Pi, sensors and software to full fill real time requirement.

Controlling DC motors, different sensors, camera interfacing with raspberry Pi using GPIO pin.

Live streaming, Command the robot easily, sends data of different sensors which works automatically or control from anywhere at any time

Design of the website and control page of robot is done using Java tools and HTML. This system works on IOT concept.

This will enable Raspberry Pi to be used for more robotic applications and cut down the cost for building an IOT Robot

Objectives

To develop an IOT based robot, which can be controlled by a mobile devices/ computer over the Internet / Wi-Fi from anywhere at any time.

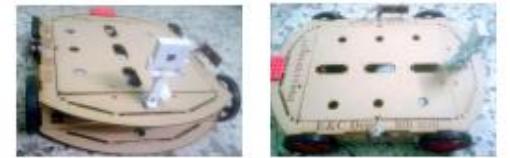
- Gather system requirements
- Evaluate and study the platform required for the system
- Evaluate and study suitable development language, technologies and tools
- Evaluate Methods of Interface
- Program Raspberry Pi
- Interface board for dc motors
- Program Website & Control Page
- Evaluate and test the system
- Maintain system



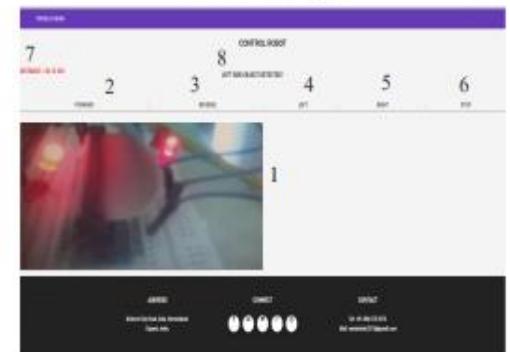
No.	Item	No.	Item
1	Raspberry Pi 2	7	Left Side DC Motor
2	Wifi Dongle	8	Right Side DC Motor
3	Raspberry Pi Camera	9	L293D Motor Driver Board
4	5V Adapter	10	9V Battery
5	Ultrasonic Sensor	11	Control from different devices
6	IR Sensors	12	User Interface to Control Robot

No & Item included of Block Diagram

FLOW CHART AND RESULT



IOT Robot Design

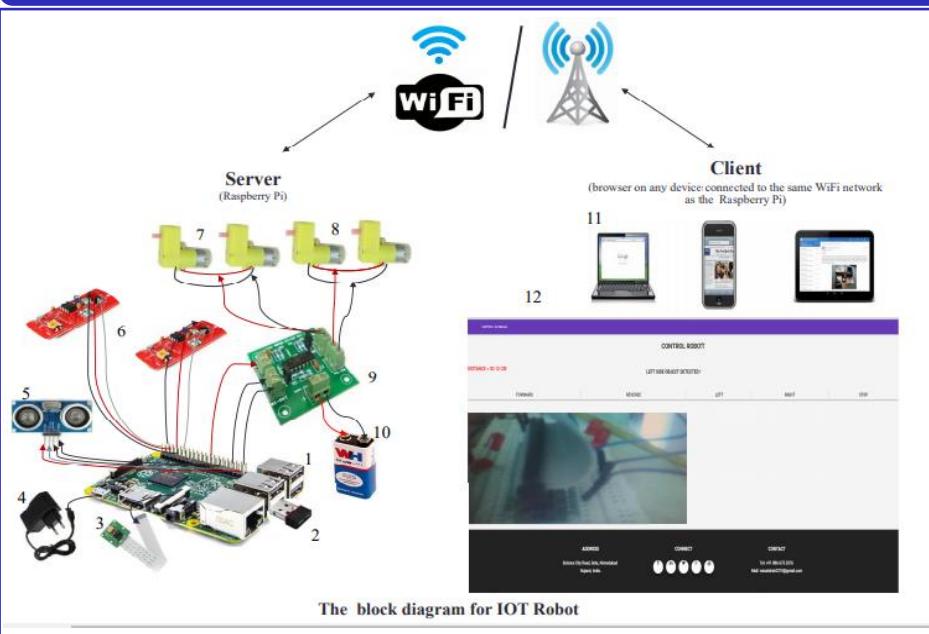


No.	Test case description	Test Result
1	Webcam Video display	Accepted
2	Move Forward	Accepted
3	Move Reverse	Accepted
4	Turn Left	Accepted
5	Turn Right	Accepted
6	Stop	Accepted
7	Ultrasonic sensor reading	Accepted
8	IR Sensor reading	Accepted

Result Set

Flow Chart

Methodology



The block diagram for IOT Robot

Conclusions

- In the future this technology can be used in various different fields of work apart from the usage discussed in this poster.
- The robot can be made autonomous with the help of more sensor, gyroscope, compass and a GPS. So that it can be set to a target or a specific area where in can monitor.
- Adding the Pneumatics design in Mechanical so robot can go up and down, can hold the object.

References

- Research Directions for the Internet of Things, John A. Stankovic, Life Fellow, IEEE
- Design and build a Raspberry Pi robot By Stewart Watkiss, (Penguin Tutor)
- Build and Interface Internet Mobile Robot using Raspberry Pi and Arduino by Prof. Dr. Nabeel Kadim Abid Al-Sahi