

# MULTIPLE MOTION CONTROL SYSTEM OF ROBOTIC CAR BASED ON IOT

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**Abstract** - IoT is a trending topic in today's world and it helps us in performing numerous tasks by making them easier and efficient. This paper proposes a robotic car where we will control its movement remotely using an Arduino Uno controller. The client can manage the activities of the car from remote or far away spots over the remote correspondence using ZigBee module and cloud service. The prime duty of this undertaking is that it utilizes the viability of robot's development controlling structure in light of the fact that robotic auto can get immediate summons at once from fundamental sources which make the moving framework more proficient. Commands and data are stored in local host service which delivers them when the device is ready to receive. We display the engineering and outline of the Arduino and wireless IoT communication software and represent how to control the car by methods for commands and application.

**Key Words:** IoT, Robotic Car, Arduino UNO, Zigbee, Remote

## 1. INTRODUCTION

Nowadays use of robots which can be used remotely is getting popular especially in those fields where work poses hazard to human life. In such scenarios these robots can be used to perform work and replace human workforce and do work effectively. This venture proposes a numerous movement controlling component of a robotic auto utilizing Arduino UNO small scale controller. Each device is uniquely identifiable by the controlling software which is the core concept of IoT. Client manages the activities of the car from remote or distant places over the wireless communication.

There is boom in today's world for use of remotely operated robots which can do tasks more effectively and efficiently. These can be used to measure various variables from our environment and work on them. IoT is a very interesting and innovative concept which holds great future opportunities.

The main aim of this project is that it leverages the efficiency of robot's motion controlling system because robotic car can receive direct commands at a time from main sources which make the maneuvering system more efficient.

## 2. LITERATURE SURVEY

**Intelligent Flight Software Robot Based on Internet of Things** by Yibin Hou, Jin Wang

This paper proposed you can utilize Matlab reenactment robot and programming, the utilization of cutting edge programming dialect to create clever flight robots. The

examination aftereffects of insightful flight checking programming robot innovation can be connected in the scholarly world and industry and therapeutic transportation. This paper thinks about the clever flight observing programming robot under the Internet of Things

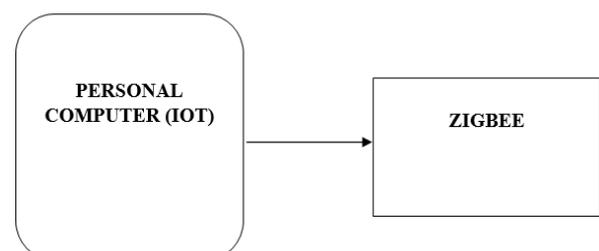
**IOT Based Remote Access Human Control Robot Using MEMS Sensor** by Abhishek Deendayal Patil, Husban Imtiyaz Kadiri, Ajinkya Shriram Joshi

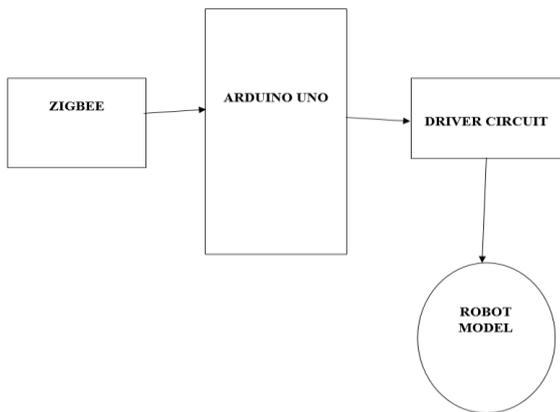
This paper proposed four different signals to operate the robot, forward, reverse, left and right. These commands are given by the user using the MEMS sensor. The MEMS sensor will be set to the hand. At whatever point the hand moves toward some path, the mechanical development of the hand will be perceived by MEMS. MEMS interpret this mechanical hand development into proportional electrical flags and send it to the Raspberry Pi. The Raspberry Pi at the transmitter side sends control signs to the recipient side through IOT (Internet of Things). The controller (ARM7) at the beneficiary zone gets these signs and provides guidance to the robot through IOT i.e. through cloud.

**Design and Construction of Microcontroller Based Wireless Remote Controlled Industrial Electrical Appliances Using ZigBee Technology** by Lu Mai, Min Zaw Oo

This paper proposed microcontroller based remote controlled for electric frameworks parameters like voltage and current utilizing ZigBee innovation. PIC16F877A controller is utilized as a part of an overwhelming way since it is rich in peripherals and henceforth numerous gadgets can be interfaced quiet, it is likewise exceptionally shabby and can be effectively gathered and customized. The PIC controller controls the gadgets and sends the sensor esteems to the PC by means of ZigBee module. In spite of the fact that Bluetooth is superior to anything ZigBee for transmission rate, ZigBee has brought down power utilization.

## 3. PROPOSED SYSTEM





**Fig -1:** Architectural Diagram

The Architecture describes how the system implements the functions which are specified in the specification level. The system architecture is further refined in to Hardware and software. Architecture which describes the components we need to build the entire system.

The sensors send the signals to the local system through Zigbee, the local system process the data and send the control signals to the Robot and switches the relay according to the conditions for ON or OFF the Motors. The Zigbee connected to the microcontroller which sends the data from the ROBOT to the local system and the Zigbee at the local system receives the data and displays the output.

This car can be operated via host pc remotely using hardware arduino , motor driver, robotic model, zigbee and sensors

And software includes arduino ide , host platform and virtuino app.

### 3.1 Hardware Section

It consists of 1) Arduino Uno 2) ZigBee 3) Motor Driver 4)DC Gear Motor

1)Arduino Uno – Arduino Uno is a microcontroller board in light of the ATmega328P which is open source and can read inputs and ask to enact according to programming.



**Fig -2:**Arduino

2)ZigBee - ZigBee is a remote innovation created as an open worldwide standard to address the remarkable needs of ease, low-control remote M2M systems. The ZigBee standard works on the IEEE 802.15.4 physical radio determination and works in unlicensed groups including 2.4 GHz, 900 MHz and 868 MHz.



**Fig -3:** ZigBee

3)Motor Driver - L293D is a double H-connect engine driver incorporated circuit which is used to convert low signal to high current signal to run motor.



**Fig -4:**Motor Driver

4) DC gear motor – This is a basic motor to make car move when command is given it will operate to make car run.



**Fig -5 :** DC Gear Motor

### 3.2 Software Section

We require Arduino IDE and support of Embedded C to make our robotic car programmed. With use of host pc user can give commands to car to run according to him.

Host pc can communicate with ZigBee wirelessly.

#### 4. CONCLUSION

The proposed robot can be used in war field, mines, power station, military operations, industries, research and educational institutions and so on. And also be used wherever people cannot go or where things doing too dangerous for humans to do safely. The Robotic movement is controlled remotely through the local system. It can do task more effectively and efficiently than human labor and also at same time take care of safety.

#### 5. ACKNOWLEDGEMENT

I would like to thank my Guide Mr. P. Boominathan for helping me up in choosing and implementing the idea which has been showcased as a project. I would also like to thank the HOD (Head of Department) of Scope Dr. V. Santhi, Dean of Scope Dr. R. Saravanan and the VIT University for supporting me up throughout the process of my project implementation to a success.

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