

Different Motion Vehicleic Car Control Using Arm Based on IOT to Produce Cloud Service

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Abstract:

The world of control is an exciting field that has exploded with new technologies where the Internet of Things (IoT) vision becomes reality. This paper proposes a multiple motion controlling mechanism of a vehicleic car using ARM controller which works as master of the project. 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 internet by voice commands and Universal Windows Application and also able to get data and feedback. The main contribution of this paper is that it leverages the efficiency of vehicle motion controlling system because vehclic car can receive direct commands at a time from multiple sources which make the maneuvering system more efficient. Both device and client do not need to be online at the same time. Commands and data are stored in cloud service which delivers them when the device is ready to receive. A GPS system is incorporated thus clients can trace the car. The system has ultrasonic distance sensor for avoiding obstacles coming in between its path. And illustrate how to control the car by means of commands and application. This task is planned utilizing a Microcontroller which frames the control unit of the undertaking. As indicated by this task, an android is utilized to transmit the information to vehicle and vehicle is getting the information and controls the bearing of the vehicle.

Similarly, Bluetooth which is set on the vehicle gets the summons as per which the course of the vehicle is changed. The microcontroller is controlling the course as indicated by summons being gotten at the Receiver side i.e... Vehicle segment.

Segments:

ARM Microcontroller, Android, Bluetooth, GPS, GPRS, LCD-Display, Ultrasonic Sensor, Battery, Motor Driver, Motors, Kiel U vision, Embedded 'C', Express PCB, Android.

Existing System:

This project describes the design of a simple, low-cost microcontroller Increasing commercial use of the Global Positioning System will soon make it possible to locate anything, anywhere, anytime. The Global Positioning System can provide extremely accurate location information for mobile objects and people which is far superior to earlier tracking techniques.

The challenge today is integrating the necessary components into older systems and improving GPS accuracy in areas with numerous obstructions. As more devices become GPS enabled, accuracy will increase and the system's scale and global reach will benefit everyone.

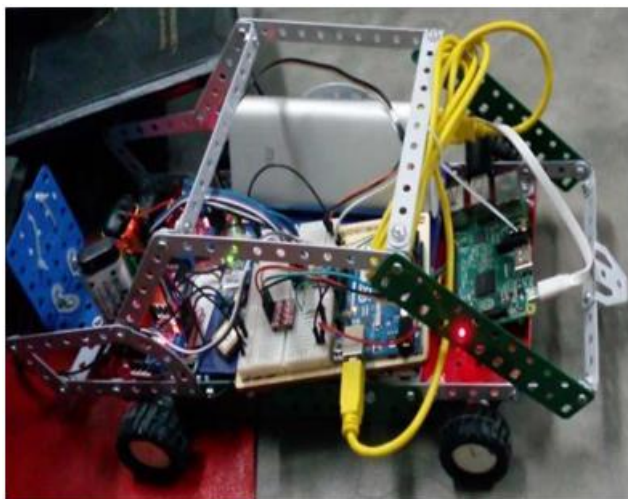
Drawback:

This paper has some limitations. No video surveillance system has been incorporated.

The wireless range is too small. It can be efficient if GPRS, zigbee module is used for wireless medium. Including object detection method is one of the main future works that needs to be implemented.

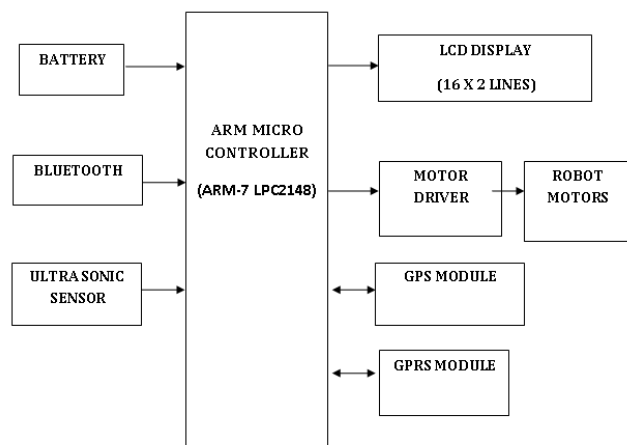
Proposed System:

This undertaking presents client free discourse acknowledgment based moving CAR. The undertaking is been composed and executed with ARM-7 LPC2148 in inserted framework area. Exploratory work is deliberately completed. The outcome demonstrates that discourse acknowledgment for moving robot utilizing inserted framework as indicated by prerequisite of the client. Bluetooth will give proficient approach to transmit the message and to control the CAR.



Modules used in this project:

VEHICLE SECTION:



Power Supply:

This section is meant for supplying Power to all the sections mentioned above. It basically consists of a Transformer to step down the 230V ac to 9V ac followed by diodes. Here diodes are used to rectify the ac to dc.



Microcontroller (ARM-7 LPC2148):

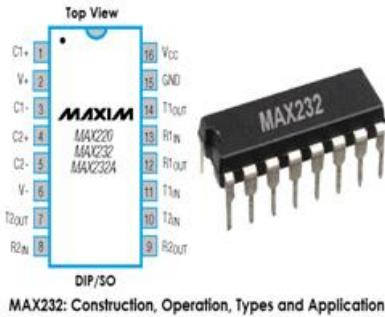
The **LPC2148** are based on a 16/32 bit ARM7TDMI-S™ CPU with real-time emulation and embedded trace support, together with 128/512 kilobytes of embedded high speed flash memory. A 128-bit wide memory interface and unique accelerator architecture enable 32-bit code execution at maximum clock rate. For critical code size applications, the alternative 16-bit Thumb Mode reduces code by more than 30% with minimal performance penalty. With their compact 64 pin package, low power consumption, various 32-bit timers, 4- channel 10-bit ADC, USB PORT, PWM channels and 46 GPIO lines with up to 9 external interrupt pins these microcontrollers are particularly suitable for industrial control, medical systems, access control and point-of-sale. With a wide range of serial communications interfaces, they are also very well suited for communication gateways, protocol converters and embedded soft modems as well as many other general-purpose applications.



MAX 232:

The microcontroller can communicate with the serial devices using its single Serial Port. The logic levels at which this serial port operates is TTL logics.

But some of the serial devices operate at RS 232 Logic levels.



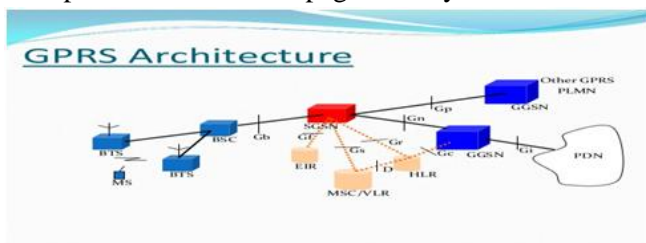
LCD Display:

This section is basically meant to show up the status of the project. This project makes use of Liquid Crystal Display to display / prompt for necessary information. Liquid crystal displays (LCDs) have materials, which combine the properties of both liquids and crystals.



GPRS:

This section consists of a GPRS modem. The modem will communicate with microcontroller using serial communication. The modem is interfaced to microcontroller using MAX 232, a serial driver. The Global Packet Radio Service is a TDMA based digital wireless network technology that is used for connecting directly to internet. GPRS module will help us to post data in the web page directly.



Global Positioning System:

A GPS modem is used to get the signals and receive the signals from the satellites. In this project, GPS modem get the signals from the satellites and those are given to the microcontroller.

The signals may be in the form of the coordinates; these are represented in form of the latitudes, longitudes and altitudes. Global Positioning System (GPS) technology is changing the way we work and play. You can use GPS technology when you are driving, flying, fishing, sailing, hiking, running, biking, working, or exploring. With a GPS receiver, you have an amazing amount of information at your fingertips. Here are just a few examples of how you can use GPS technology.



Bluetooth:

AUBTM-22 is a Bluetooth v1.2 module with SPP profiles. The module is intended to be integrated into another host system which requires Bluetooth functions. The HOST system could send commands to AUBTM-22 through a UART. AUBTM-22 will parse the commands and execute proper functions, e.g. set the maximum transmit power, change the name of the module. And next the module can transmit the data receive from the UART with SPP profiles. Bluetooth is a wireless technology used to transfer data between different electronic devices.



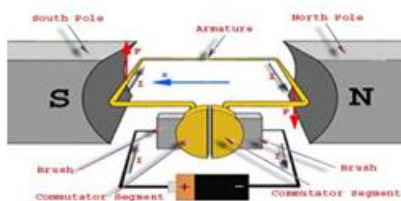
Ultrasonic Sensor:

The ultrasound transmitter TX is emitting ultrasound waves into sensor ambient space continuously. These waves are reflecting from various objects and are reaching ultrasound receiver RX. There is a constant interference figure if no moving objects are in the placement. The sensor is primarily intended to be used in security systems for detection of moving objects, but can be effectively involved in intelligent children's toys, automatic door opening devices, and sports training and contact-less-speed measurement equipment.



DC Motor:

DC motors are configured in many types and sizes, including brush less, servo, and gear motor types. A motor consists of a rotor and a permanent magnetic field stator. The magnetic field is maintained using either permanent magnets or electromagnetic windings. DC motors are most commonly used in variable speed and torque.



Android:

Android is a mobile operating system developed by Google, based on the Linux kernel and designed primarily for touchscreen mobile devices such as smartphones and tablets.



Advantages:

1. In this project not support line of sight
2. The car is moving solids and walls operating through android.
3. This project is very usefull in military and industries.
4. No light sensitive in this project.
5. This project is Not as sensitive to weather/environmental conditions
6. This project operating is simple.
7. User friendly voice operated through bluetooth.

Applications:

- Military
- Navy Applications
- Local monitoring applications

Conclusion:

The assignment "DIFFERENT MOTION VEHICLEIC CAR CONTROL USING ARM AND BASED ON IOT TO PRODUCE CLOUD SERVICE" has been successfully laid out and tested.It has been made by organizing components of all the hardware parts used. Proximity of every module has been considered out and put intentionally thusly adding to the best working of the unit. In this paper an efficient approach of multiple controlsystem is incorporated with IoT. Controlling multiple devices in multiple ways makes causes more convenience in handling a system. The cloud service helps the system to reduce memory load. Stored messages are automatically removed after a certain amount of time. The performance results provethat if the incorporation is efficient enough, multiplecontrolling methods have less effect on time and performance compared to single way of control system. Yet, the system has some limitations. No video surveillance system has been incorporated. The wireless range is too small. It can be efficient if GPRS, zigbee module is used for wireless medium. Including object detection method is one of the main future works that needs to be implemented.

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