IoT Tracking Device

C. Stalin jose[1], K. Ajin[2], A. Ashokkumar[3]

[1]Assistant Professor, Department of Electronics & Instrumentation Engineering, Adhiyamaan College of Engineering (Autonomous), Dr. M. G. R. Nagar, Hosur, Tamil Nadu, India

[2-3]Student, Department of Electronics & Instrumentation Engineering, Adhiyamaan College of Engineering (Autonomous), Dr. M. G. R. Nagar, Hosur, Tamil Nadu, India

ABSTRACT

The tracking system is technology that is used by many companies and individuals for several tracking purposes like vehicle tracking, child safety, women's safety etc. In our project we track a vehicle based on IOT using GPS and that operates using satellites and ground-based stations or by using our approach which depends on the cellular mobile towers. It is a fleet management solution and total security, the internet of things (IoT) may provide satisfactory and good results in our work by relying on a mixture of software and hardware. The data from the IoT tracking device are constantly uploaded to the cloud platform and making access to its information from anywhere at any time. The aim of using IoT for tracking and monitoring is due to the great advantage that provides when working with its components and platforms.

Keywords : Tracking Device, GPS, Internet of Things

I. INTRODUCTION

Geographic position tracking techniques are evolving day by day. Those techniques are using for numerous things nowadays. Factories, industries, and other huge economical enterprises are getting rapidly developed over a decade. By this security is playing a main role in their environment. In this situation, GPS asset tracking systems are very helpful for the industries and other business vendors to track their assets in many ways. One of the main needs is to track their goods vehicle to make confirm that their product reaches a particular place safely. By combining IoT and cloud techniques with these we can store and retrieve the GPS data whenever we want. GPS provides highly interactive maps. These help users to find their tracking products even more precisely. In

this way, IoT combined geographic positioning system is improving asset tracking need.

Tracking systems have brought GPS technology day-to-day lifetime of the person. These days GPS fitted cars, police vehicles, fleets and ambulance are common sights on the roads of developed countries. Familiar by several names like Automatic Vehicle Locating System, Vehicle tracking and Information System, Mobile quality Management System, these systems provide an efficient tool for rising the operational potency and utilization of vehicles. GPS is employed in vehicles for each tracking and navigation. Tracking systems enable a base station to stay track of the vehicles and navigate the driver to achieve the destination. The all existing technology can offer solely tracking the vehicle and additionally navigations. The planned technology is integration of

GPS systems, Wi-Fi systems. All mentioned systems are integrated along and transfer the info to cloud server that is stored and maintained in their infrastructure. The GPS technology integration for vehicle tracking the most advantage of planned technology is sensors primarily based watching the vehicle activity.
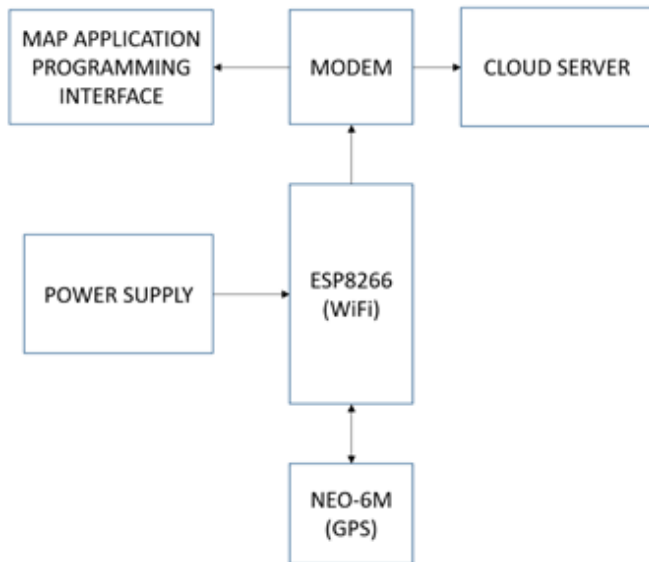

Fig. 1 Block Diagram

II. DESCRIPTION

The ESP8266 Wi-Fi module is the main unit for transferring the GPS data to the cloud server. ESP8266 is a compatible wifi module which is mainly developed for the IoT application. ESP8266 is also called as NodeMCU. Which node is referred for a firmware developed for ESP8266 chip and MCU stands for microcontroller unit. ESP8266 has tensile xtensa 32-bit reduced instruction set computer microprocessor. Which contains 80 to 160 MHz clock frequency. Which possess 128kB of random access memory. 4MB of an external flash. 802.11 b/g/n Wi-Fi transceiver. Wi-Fi module can accept power supply through its built-in USB port. Usually, the USB port delivers 5V supply to the ESP8266 but it only works with 3V to 3.3V. For this purpose, there is a built-in

voltage regulator on its board. Which coverts high voltage to system capable voltage.

Fig.2 ESP8266(wifi)

The Geographic position system module is used to gather the location co-ordinates and sent it to the ESP8266 wifi module. The Wi-Fi module is connected to a local area network whether that local area network is linked to cloud servers. GPS module is connected with the ESP8266 Wi-Fi module. The GPS module contains four pins which are Vcc, Tx, Rx, and ground. The Vcc pin is for power supply. GPS module intakes a standard power supply of 3.3V which is provided by 3.3V pin from the wifi module. Transmitter(Tx) pin of GPS is connected to the receiver(Rx) pin of the wifi module and the receiver(Rx) pin of GPS is connected to the Transmitter(Tx) pin of the wifi module. These connections are responsible for the data interchange between the wifi module and the geographic positioning system.

Cloud server and Wi-Fi module is must connect in the same local area network. Local area network connection is provided by a external modem. Programming is needed to connect those cloud server and Wi-Fi module with the modem. After the connection is made the data is automatically upload to the clouds database and the data are represented by graph. Map application programming interface is use to display the location in a real map layout. For this purpose we want to create a Google map application programming interface. Then the data's are display in the map.
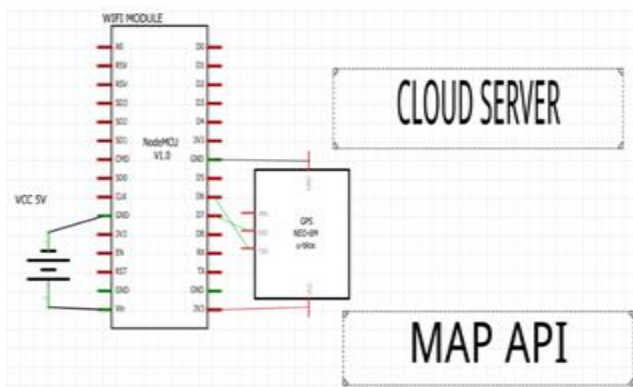
III. CIRCUIT DIAGRAM

Fig.3 Circuit Diagram

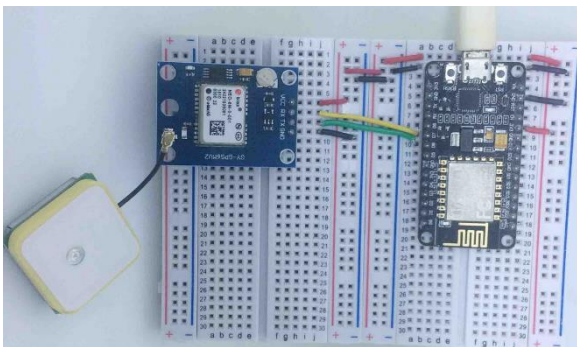Above diagram shows the circuit of the tracking system.

IV. RESULTS

Fig.4 Result (Model)

We tested and implemented the IoT tracking device. The result was shown in Fig.4. The system was tested with vehicle and the GPS data are successfully uploaded to the cloud server and shown in map application programming interface

V. CONCLUSION

In this paper, we express the development of IoT tracking device. The proposed tracking system is made with Wi-Fi system and GPS system which provide great efficiency and precision in location tracking. And this module so small in size thus it easily fit everywhere.

VI. FUTURE WORKS

In future these tracking system can be redesign as more efficient and provide more precision in tracking location. And the cloud server infrastructure is improved well to store and retrieve data.

VII. REFERENCES

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