

ADVANCED MOBILE CHATBOT SECURITY SYSTEM USING WHATSAPP

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Abstract - The main aim of this project is to construct a smart vehicle to forecast the weather and to enhance the security level of vehicle by adding a step to the current existing security system. It shares the location coordinates to find the location of vehicle, using Nodemcu module and GPS system (Neo-6M). Basing on the input instructions from the Whatsapp, we can also change directions of the vehicle even if it is not in our vicinity. By using this we can almost prevent the unauthorized access to vehicles in various fields. We can provide advanced security to the vehicles which are not public accessible. The cloud system (Twilio) acts as a medium between Whatsapp and chatbot.

Key Words: Nodemcu, Cloud System, GPS, Twilio, NEO-6M and Whatsapp.

1. INTRODUCTION

This project deals with design and development of the theft control system for an automobile, which is being used to prevent or control the theft. In today's world, vehicles form an important asset to us without which our life would be incomplete. But, when it comes to the security of our vehicles, we are very helpless. It is very difficult to provide security to vehicles which are parked in remote areas. To overcome this problem, we can make use of our digital technology and can create a robot to provide security for our vehicles which works very efficiently as compared to a human. If the robot is interactive with the person who is maintaining the robot that type of robot is called chatbot. In this project we are creating a WhatsApp chatbot to interact with the owner of the vehicle. We make use of WhatsApp platform to connect with the servers and transfer the data. Hence this is named as WhatsApp chatbot. This bot monitors the vehicle by tracking its location very accurately and by sensing weather conditions in and around the vehicle. This bot can also be used in the fields like military where there is a requirement of taking quick decisions. The decisions can be converted to commands and transferred to the bot to execute the operation. Finally we can say that we can avoid all the unauthorized access to automobiles.

1.1 Area of Project

The Internet of Things, or IoT, refers to the billions of physical devices around the world that are now connected to the internet, all collecting and sharing data. Thanks to the arrival of super-cheap computer chips and the ubiquity of wireless networks, it's possible to turn anything, from something as small as a pill to something as big as an airplane, into a part of the IoT.

1.2 Problem Definition

In recent years, vehicle thefts are increasing at an alarming rate around the world. People have started to use the theft control systems installed in their vehicles. The commercially available anti-theft vehicular systems are very expensive. Here, we make a modest attempt to design & develop a simple, low-cost vehicle theft control scheme using an inbuilt microcontroller. This scheme involves a microcontroller & a mobile for communication purposes. The Global System for Mobile communications (GSM) is the most popular standard for mobile phones in the world. Over a billion people use GSM service across the world.

1.3 Goal

An anti-theft control system for automobiles tries to prevent the theft of a vehicle. This project proposes an anti-theft system to ensure car owners for avoiding car theft and finding car locations after stealing. It hence deters thieves from committing the theft. This system makes use of an embedded chip that has a Wi-Fi module and connects to the server and transmit the location coordinates of the vehicle on executing a command. To find weather conditions of the area where the vehicle is located.

1.5 Tools Used

1.5.1 Hardware Tools

- NODEMCU ESP8266
- BMP180
- MOTOR DRIVER
- NEO 6M GPS MODULE

1.5.2 Software Tools used

- Arduino IDE

1.5.3 Web Application Used

- Twilio

2. BACKGROUND

2.1 Chatbot

The word "Chatbot" consists of the terms "chat" and "robot". Originally, the term Chatbot was used for a computer program, which simulates human language with the aid of a text-based dialogue system. Chat bots contain a text input and output mask, which allows mobile users to communicate with the software behind them, giving them the feeling of chatting

with a real person .Since the introduction of smart phones and mobile applications, shortly apps, the term Chatbot is mostly used for messenger apps rather than for pure computer programs.

Chatbot as a new information, communication and transaction channel enable businesses to reach their target audience through messenger apps like Facebook, WhatsApp or WeChat. Latest chat boats developments in customer services and sales are remarkable. However, in the field of public transport, little research has been published on chat bots so far. With chat boats, passengers find out timetables, buy tickets and have a personal, digital travel advisor providing real-time and context-relevant information about trips. Chatbots collect and provide different data about users and their journey in public transportation systems. They include travel, product, service and content preferences, usage patterns, demographic and location-based data. They enable new user touch points, improve convenience, reduce service, sales and support costs, one-to-one marketing, new data collections and deep learning. Using chat bots, Smartphone users can reach a company anytime and anywhere. The number and variety of chat bots strongly increased in last couple of years. However, chat bots as a personal, interactive and disruptive information, communication and transaction channel.

The fields of applications of Chatbots are manifold (compare figure): Very popular are calendar assistants (Chatbots like X.ai, Rhonda) and Chatbots for reserving or purchasing event tickets (e.g. Morph.ai). Searching and buying products online using Chatbots are popular too (e.g. H&M, chatShopper, eBay). Moreover, 58% of the asked users are using Chatbots for booking hotels, trips and flights (e.g. KLM, Swiss, Austrian Airline chatbot). Other fields are chatbots for news (e.g. CNN, NBC & BBC News chatbot in the Facebook messenger), etc... Last but not least, many chatbots are used for customer and delivery services.

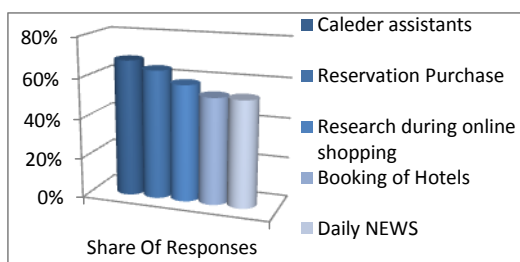


Fig - 1: Usage of Chatbots.

2.2 Internet of Things

The Internet of Things (IoT) refers to the use of intelligently connected devices and systems to leverage data gathered by embedded sensors and actuators in machines and other physical objects. IoT is expected to spread rapidly over the coming years and this convergence will unleash a new dimension of services that improve the quality of life of consumers and productivity of enterprises, unlocking an opportunity that the GSMA refers to as the 'Connected Life'.

2.3 Cloud Computing

In the simplest terms, cloud computing means storing and accessing data and programs over the Internet instead of your computer's hard drive. The cloud is just a metaphor for the Internet. On Cloud computing, on the other hand, is used to work on and complete specified projects. Cloud computing is linked with cloud storage in that you have to move data to the cloud (cloud storage) before you can make use of cloud computing systems.

- Email Communication.
- No Need to Upgrade Local Storage.
- Collaboration Made Easy.

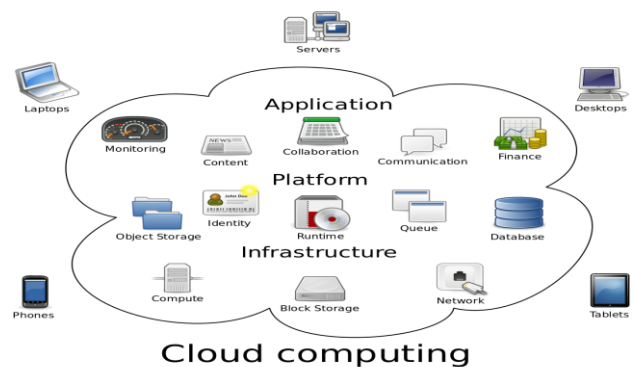


Fig - 2: Cloud Computing

3. IMPLEMENTATION

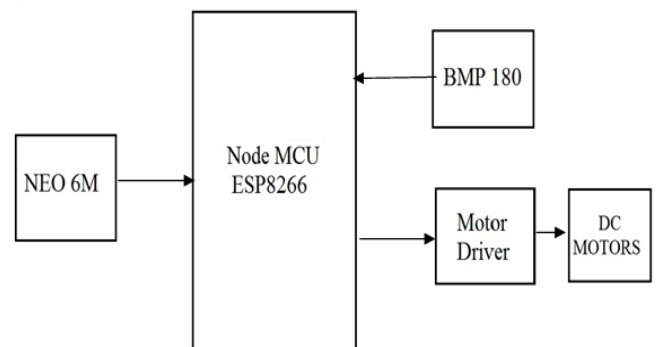


Fig - 3: Block diagram of Proposed Methodology.

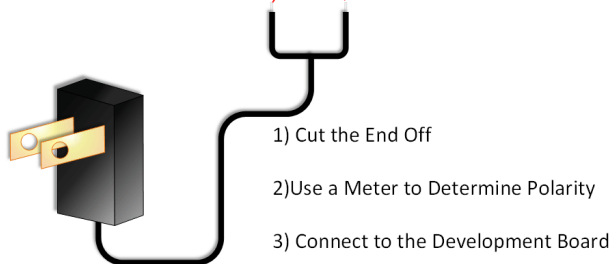
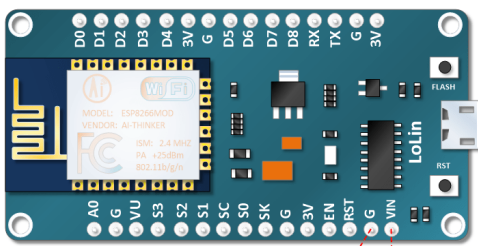
3.1 Hardware Implementation

3.1.1 PowerSupply

Specific Nodemcu Power Supply Examples:

- Power the Nodemcu ESP8266 via the USB Port.
- Use a Bench Top Supply Unit (Minghe B3603)
- Use the Minghe Supply and Connect to 3.3V Input.
- Use a Wall Wart.
- Power the Nodemcu with a 9V Battery.

- Power the ESP-12E Development Board with 3.3V Regulator.



- 1) Cut the End Off
- 2) Use a Meter to Determine Polarity
- 3) Connect to the Development Board

Fig -4: Powering Nodemcu via wallmart.

3.1.2 Usage of NodeMCU pins

Nodemcu has 17 GPIO pins and by using these 17 pins we have to connect all the components without mismatching.

Nodemcu pins	Component pins
D5	(NEO-6M) RX
D4	(NEO-6M) TX
D1	(BMP-180)SCL
D2	(BMP-180)SDA
D3	(L298N Motor Driver)IN_1
D6	(L298N Motor Driver)IN_2
D7	(L298N Motor Driver)IN_3
D8	(L298N Motor Driver)IN_4

Table -1: Jumper connections of Nodemcu.

3.1.2 Internal Connections

After making all the connections the final output will be like.

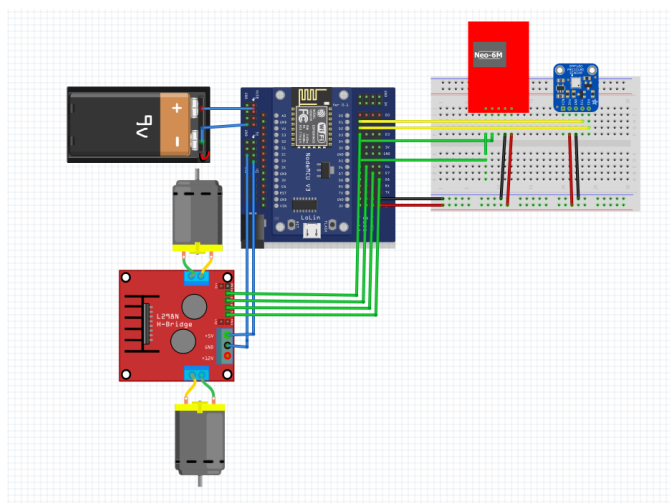


Fig -5: Schematic of Hardware Components.

3.2 Software Implementation

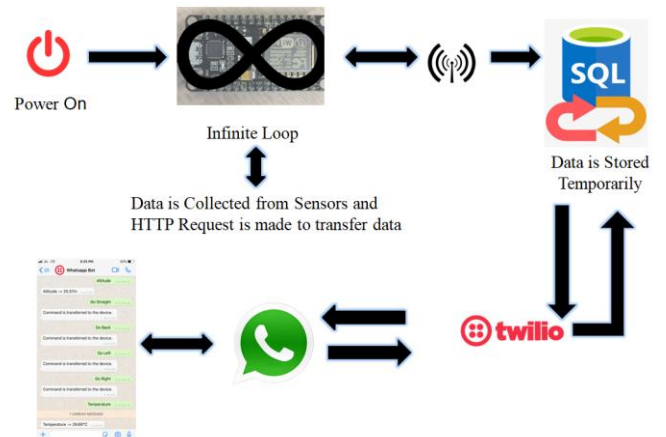


Fig -6: Pipelining of Server with middleware and kit

3.2.1 Hosting Php server

It is mandatory to have server to transfer the data. Here we have opted for Php server because it is easy to write code. We don't face any complexity in hosting php server. Moreover this is available for free and many sites like 000webhost.com are providing it with phpmyadmin sql database. We can easily connect it to sql database.

3.2.2 Connecting to Php server

After choosing a server, upload the php code to the server. Make sure that sql database's username and password are correct as per the sql server. After uploading save the path of php file for further usage.

3.2.3 Using Middleware

Open twilio website and create an account to connect with php server. After signing in open the programmable sms option and then follow the instructions shown on the desktop next paste the path you have saved previously in the twilio whatsapp api which is present in programmable sms feature.

3.2.4 Connecting to Whatsapp

After setting up api with php server follow the instructions as shown on the screen and verify your whatsapp by sending the given keyword to whatsapp api.

4. CONCLUSIONS

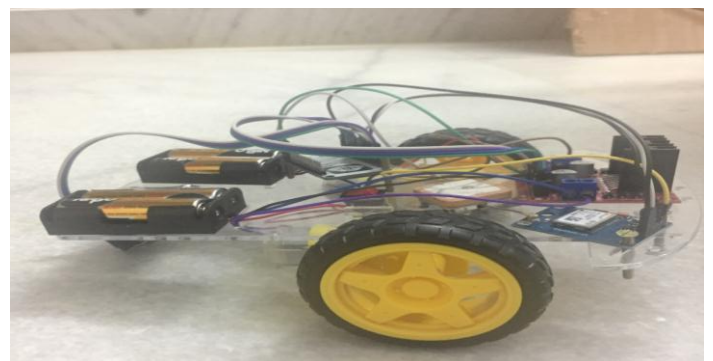


Fig -6: Vehicle embedded with hardware.

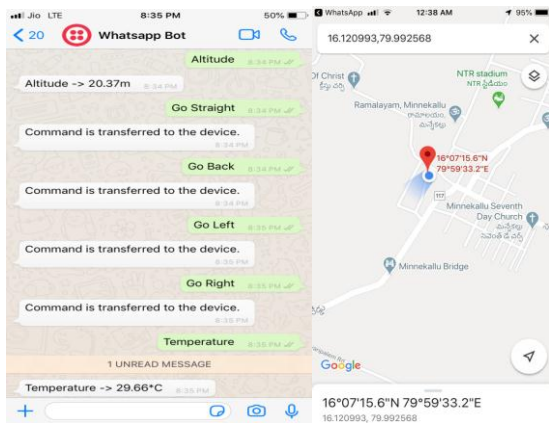


Fig -7: Executing commands using Whatsapp.

The result of any design brings joy if aims and objectives are successfully fulfilled. Hence our attempt to make a modest low cost and effective vehicle theft control system is finally accomplished. The major advantage of this system is that the whole work can be made with a meager amount of investment and can be used in any automobiles and thus bringing in less sophisticated and simple technology. In the future, there is no doubt, that all of the vehicles will be embedded with this unique kit. In addition to the above features, we can also add extra features like thumb/face recognition to ascertain more security of the vehicle.

As this is the first of its type, we tried our best to develop it and give all privileges to the users itself as we believe that the user can get access to chatbot very quickly. We also provided the user with the best interfaces of our knowledge and visualizations of the possessing data. We believe that the project is up to the mark. We have implemented all the ideas we have when we started the project. So, we can acknowledge that the project is ready to use and well completed. We gave the best finishing to it and made it a friendly project which can be easily understood and easily implemented. We can say we have succeeded in accomplishing the given task.

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