



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

GPS DOCKING SYSTEM

Tasmay Barve

Ram Vaidya

Ved Uppanlawar

Komal Zabak

Vishwakarma Institute of Technology, Pune – 411037, Maharashtra, India

Abstract — The movement of any vehicles or workers can now be easily tracked using a new tracking system. The device is known as a GPS tracking system, or global location system.

This system gives supervisors the trust and assurance they need. The global positioning system that is currently installed in the car was primarily created using satellite technology. Using a satellite navigation system, the GPS, or global positioning system, provides precise time and location at any moment. This method is used in all sectors of society, including the military, civil service, and business. With the aid of this technology, several global corporations have created GPS navigation devices.

Keywords —GPS, Tracking, System

I. INTRODUCTION

The word GPS, short for "Global Positioning System," refers to a satellite navigation system that gives users location and time data in all-weather scenarios THE Global positioning system (GPS). A method that accuracy and affordability, first became widely used in 1990. Many geophysical processes, such as the movement of tectonic plates, have been studied using it. Deformation of the plate boundary. In today's world GPS is one of the most important technologies of our modern world. It is the backbone for navigation, and it has many applications in the defense sector.

Global 3D positioning, navigation,

and timing are all provided by GPS in real-time. Transportation and logistics efficiency have become increasingly important as oil prices climb. a crucial component of business Some efforts are being made to embrace more efficient forms of transportation to cut costs brought on by rising oil prices.

Fleet managers use vehicle location data to effectively arrange schedules that shorten travel times and distances. Using global positions, this study shows a vehicle tracking system.

II. LITERATURE REVIEW

Review of papers is done to collect information about the background, status and previous system, where we can find solutions to the unattained problems. A variety of related papers are reviewed and summarized as follows.

- J. F. Zumberge, M. B. Heftin, D.C. Jefferson, M. M. Watkins, and F. H. Webb “Precise point positioning for the efficient and robust analysis of GPS data from large networks” it talks about the management of GPS data and gives us the explanation on mathematics of Computational Burden, Partitioning and Double Differencing of GPS for pinpoint location.
- RICHARD B. THOMPSON - Global Positioning System: The Mathematics of GPS Receivers this research article discusses on the mathematical model behind working of GPS it explains us about how GPS module able to trace our location using trilateration and mathematics is solved using linearization.
- Stefan van der Spek,, Jeroen van Schaick , Peter de Bois , and Remco de Haan - Sensing Human Activity GPS Tracking this paper discusses about the – this research paper was based on the study conducted in Europe where they collected the data from 12 family’s the conclusion was that it has wide variety of application and still it has more application coming in future
- Miss. A. S. Mamdya, Miss. P. R. Sandupatla, Miss. N. I. Saka, Prof. P. J. Kothawale, Prof. V. Shirashayad, Dr Kazi K. S. - GPS Tracking System – In this research paper they have developed a GPS tracker Which shows the current location on the google maps.
- Hind Abdalsalam Abdallah Dafallah - Design and implementation of an accurate real time GPS tracking system – this paper also talks about development of GPS tracker but the difference in actual location and location shown in tracker has only difference of 1 meter.
- Yassine Zein , Mohamad Darwiche , Oussama Mokhiamar - GPS tracking system for autonomous vehicles this system is little different from conventional method instead of pre-installed maps it uses GPS to learn the

area and routes

III. METHODOLOGY

THE First thing we must do in this system is to select the correct GPS module for the development of GPS tracker here we have selected the NEO6MV2 GPS module.

Next step is to create the circuit diagram and also work on the accuracy of the system

WE Also study the mathematics behind the GPS which is based on the principle of trilateration and also to solve equations we also learned the method of linearization.

After Creation of circuit diagram we have also worked on connecting of the system to think speak where the system will upload the real time data of the GPS tracker.

We ARE also using the Sd card in the system which will act as the backup for the data because if due to some problems in the network if data is not transmitted in the system we will still have that data and we still can have the location of GPS and where it move.

IV. CIRCUIT DIAGRAM

AS you can see on the right side that now let’s talk about the circuit diagram

As mentioned earlier In the paper we have used NEO6MV2 GPS module because it cost efficient and also it has great precision.

For microcontrollers we are using NODMCU because it has built Wi-Fi and Bluetooth as we must transmit data into think speak also it has 4mb of flash memory.

As you can see, we are using the lcd display so that it can also show the values of latitude and longitude to the user.

WE have also connected our Sd card to NODMCU so it can store the values of latitude and longitude in the system as backup data.

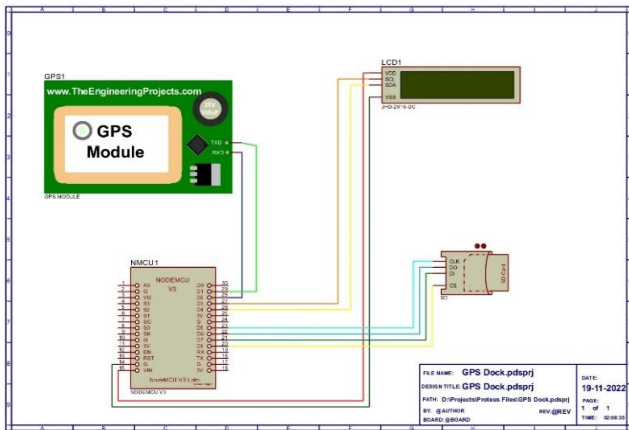
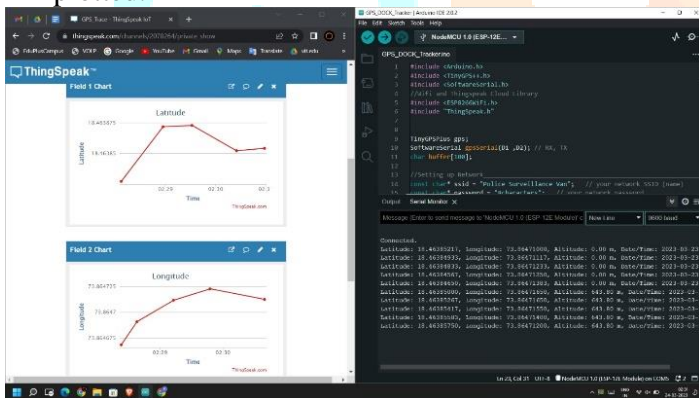


Fig: Circuit Diagram using Proteus 8 Professional

V. LIMITATIONS

AS we are working with NE6M this GPS module has certain issues in the indoor and can lose its accuracy by certain extent in the indoor.

As well as due to ThingsSpeaks Trial version over being used, this data visualization is having around 10-15 seconds of data buffer for being plotted.



VI. FUTURE SCOPE

This system can be used as tracker with some modification in it. Also this system can be used as system which send so's signal to your Emergency contacts and authority with your location.

VIII. CONCLUSION

We have successfully develop the system which can trace the location and upload the data over local as well as thingspeak cloud for getting it processed and Stored.

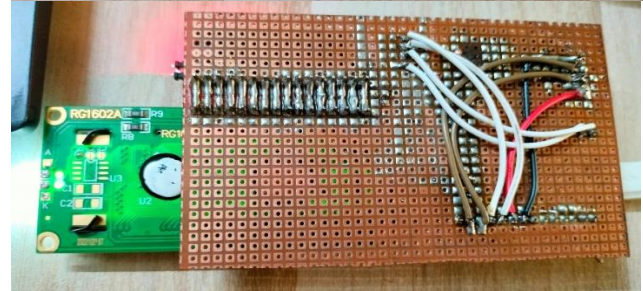


Fig: Working Components while soldered/mounted over Zero PCB

VII. ACKNOWLEDGMENT

We wish to express a deep and profound sense of gratitude to our guide Prof. MILIND RANE for guiding us throughout the project at every step, and for her comments that greatly improved the manuscript. Also, thanks to her for sharing her pearls of wisdom with us during the project designing, and we thank her reviews for their insights.

Fig: Data Acquisition and monitoring using ThingsSpeak and Serial Interface.

IX. REFERENCES

1. J. F. Zumberge, M. B. Heftin, D.C. Jefferson, M. M. Watkins, and F. H. Webb "Precise point positioning for the efficient and robust analysis of GPS data from large networks"
2. RICHARD B. THOMPSON - Global Positioning System: The Mathematics of GPS
3. Stefan van der Spek, Jeroen van Schaick, Peter de Bois, and Remco de Haan - Sensing Human Activity GPS Tracking
4. Miss. A. S. Mamdya, Miss. P. R. Sandupatla, Miss. N. I. Saka, Prof. P. J. Kothawale, Prof. V. Shirashayad, Dr Kazi K. S. - GPS Tracking System.
5. Hind Abdalsalam Abdallah Dafallah - Design and implementation of an accurate real time GPS tracking system.
6. Yassine Zein a, Mohomad darwinche a, Ossama Mokhiamar - GPS Tracking System for Autonomous Vehicles.