

GPS Tracking System

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Abstract: *There is a new tracking system available for monitoring the movement of any vehicles or employees without any hassle. The system is called a global positioning system or GPS tracking system. This system provides the most required confidence and assurance of supervising. The global positioning system that is now used in the vehicle is basically developed on the principal of satellite technology. GPS or global positioning system provides accurate time and location anytime using the satellite navigation system. This system is used everywhere now including the military services, civil services and also for commercial usages. Using this technology several multinational organizations have produced GPS navigation devices to track things accurately. There are mainly two things that are required to run a GPS system. GPS satellite signal transmitter and a GPS receiver. Due to the high cost of fossil energy various methods have been planned to further decrease energy consumption in logistics and fleet management. GPS tracking systems are a popular approach to obtaining real-time vehicle location information for task force scheduling.*

Keywords: GPS; GPRS; Google earth; Google Map

I. INTRODUCTION

The term GPS, abbreviated as "Global Positioning System" means satellite navigation system, provides users with position and time information in all climatic conditions. GPS is also used for navigation in planes, ships, cars and trucks. This system brings important functionality to military and civilian users around the world. GPS provides real-time, continuous 3D positioning, navigation and timing around the world. As oil prices continue to rise, Efficient transportation and logistics have become a very important part of the business. In order to reduce costs due to rising oil prices, some attempts are being made to adopt more efficient methods of transportation. Vehicle tracking is a way to reduce costs by knowing the real-time location of vehicles such as trucks and buses. Vehicle location information is used by fleet operators to efficiently plan schedules that reduce transit times and distances. This study presents a vehicle tracking system using global positions.



Fig.1- GPS module



II. BACKGROUND

2.1 GPS Technology

The Global Positioning System (GPS) is a system consisting of a network of 24 US satellites originally used for military purposes and later approved for commercial use. Satellites periodically transmit short pulses of radio signals to GPS receivers. A GPS receiver receives signals from at least three satellites to calculate distance and uses triangulation techniques to calculate position in two dimensions (latitude and longitude) or his three dimensions of at least four satellites. Calculate the location (latitude, longitude, height) of the place. Once the position is calculated, the average speed and direction of movement can be calculated. GPS is therefore an important technology for telling a device its location.

The basic idea of any satellite positioning system is to calculate the distance between a satellite and the current location of the GPS unit. The position of each satellites is known. Using the calculated distance from four satellites, one can narrow their current position to exactly one place on earth’s surface. The accuracy of the positioning depends on how accurately the distance is measured and how precisely the position of the satellite is known. The forerunner The current Global Positioning System (GPS) started as a military project in the late 50s. His first two attempts were made by the Navy. In 1959, Transit was the first satellite-based navigation system. Seven low-altitude polar satellites and radio signals were used to obtain relatively precise information about the positions of individual ships. Transit used the Doppler Effect of radio frequencies to measure distances. The Doppler Effect did not yield high accuracy, was limited to certain areas, and required continuous measurements. The second system, the Timation, was introduced in 1964. The Timation system used two space satellites equipped with atomic clocks, which provided more accurate two dimensional positioning. This system was the first to use the time it takes the radio signals to reach earth to measure the distance. Finally, in 1973, the Department of Defence funded the Navigation Technology Program that resulted in Navigation System and Ranging (NAVSTAR), now known as GPS. The current GPS system consists of 24 satellites in 6 different orbits and provides a three dimensional positioning with accuracy up to ten meters. The 24th satellite was launched on June 26, 1993

III. PROPOSED SYSTEM

In this paper, a "GPS Vehicle Tracking System" is proposed. The system helps fleet operators monitor the driving behaviour of employees and parents who monitor teenage drivers. In addition to functioning as a security system in combination with a car alarm system, this system can also be used as a tracking device for anti-theft.

Our real-time tracking and management system is an open system with free and open source software and consists of easy-to-find off-the-shelf hardware. Our system consists of three components: a GPS tracker, a server, and a database, as shown in Figure 1. A GPS tracking device is an embedded system that sends location information to a server over the GPRS network. A server is a personal computer that receives information and inserts it into a database. The database formats the information in a special format that can be searched and displayed using Google Earth or Google Maps software.

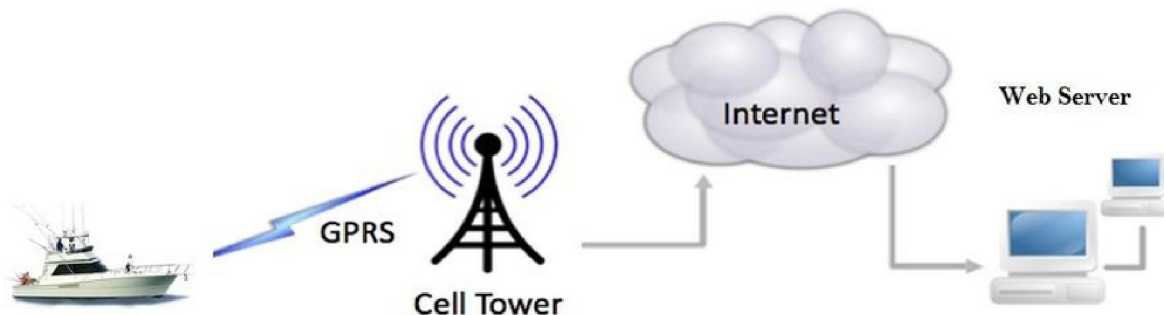


Fig 2: Method

IV. SYSTEM PROTOTYPE

Prototype is approximately 2.5 inches wide, 4.5 inches long, and 2 inches thick. This figure below shows GPS tracking module. Displays device ID, device name, and operator or driver name.



This image shows a track from his GPS tracking module of during a session, displayed on Google Maps. The same route can be exported in his KML format and viewed using Google Earth. Tracks can also be viewed in real time and can be viewed in both Google Maps and Google Earth software.

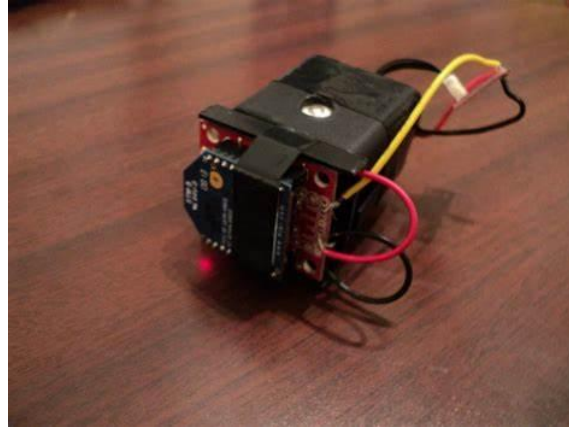


Fig. 3: Prototype GPS tracking device

V. DISCUSSION

We have discuss about the GPS tracking system. In this fist we collect the information about the GPS.The GPS is a Global Positioning System, also known as GPS is a satellite system designed to facilitate navigation on land, air and water. A GPS receiver indicates your current location. It can also display speed of movement, direction of travel, height, and overall speed of ascent or descent About its we can studied.

For the choosing of this topic is, we have face some situations in that we can't find the location the particular persons or vehicles. The GPS tracking is the most important to the nowadays

The Some GPS receivers are separate units with their own power and display. Those were the majority in the 20th century. Military receivers then displayed only the geographic coordinates, or some had no display but only gave the coordinates to another machine.it is very most important to the tracking Our expected result is the every person or vehicle location can be track easily and easily catch that person .

VI. CONCLUSION

In this paper, using commercial hardware and open source software, Proposed an open source GPS tracking system, the tracking system. The tracking system shows possible uses for fleet management. It can also be used to track lost vehicles when using a car alarm system. In the future, we plan to integrate other related devices such as sensors into the vehicle. Sensors report vehicle status information to the server. This helps in information processing and intelligent tracking management.

REFERNCES

- [1]. E. D. Kaplan, Understanding GPS: Principles and Applications, Artech House Publishers, ISBN 0890067937, February 1996
- [2]. R. J. Bates, GPRS: General Packet Radio Service, McGraw-Hill Professional, 1 st Edition, ISBN 0071381880, November 12, 2001.
- [3]. M. Mcdonald, H. Keller, J. Klijnhout, and V. Mauro, Intelligent Transport Systems in Europe: Opportunities for Future Research, World Scientific Publishing Company, ISBN 981270082X, 2006.
- [4]. Google, Inc., Google Earth software, <http://earth.google.com/> [last accessed on Feb 1, 2008].
- [5]. Google, Inc, Keyhole Markup Language Documentation Introduction, <http://code.google.com/apis/kml/documentation/> [last accessed on Feb 1, 2008]
- [6]. Miss. Kamble Sunayana Nivrutti, Prof. Gund V. D., et al, "Multimodal Biometrics Authentication System Using Fusion Of Fingerprint And Iris", *International Journal of Trends in Scientific research and Development (IJTSRD)*, Sep-Oct 2018, Vol 2, Issue 6, pp 1282-1286

- [7]. Kazi K. S., "Significance And Usage Of Face Recognition System", *Scholarly Journal For Humanity Science And English Language*, Feb-March 2017, Vol 4, Issue 20, pp 4764-4772.
- [8]. Prof. Kazi K. S., "Situation invariant Face Recognition using PCA and Feed forward Neural Networks", *Proceeding of ICAEST*, Feb 2016, ISBN: 978 - 81 - 930654 - 5 - 4, pp 260-263.
- [9]. Prof. Nagarkar Raviraj Prakash, et al., "Pose invariant Face Recognition using Neural Networks and PCA", *International Engineering Journal For Research & Development*, Vol 4 special issue, pp 1-4. <https://doi.org/10.17605/OSF.IO/CEVUG>
- [10]. Miss. A. J. Dixit, et al, "Iris Recognition by Daugman's Method", *International Journal of Latest Technology in Engineering, Management & Applied Science*, July 2015, Vol 4, Issue 6, pp 90-93.
- [11]. Wale Anjali D., Rokade Dipali, et al, "Smart Agriculture System using IoT", *International Journal of Innovative Research In Technology*, 2019, Vol 5, Issue 10, pp.493-497.
- [12]. Ms. Machha Babitha, C Sushma, et al, "Trends of Artificial Intelligence for online exams in education", *International journal of Early Childhood special Education*, 2022, Vol 14, Issue 01, pp. 2457-2463.
- [13]. Pankaj R Hotkar, Vishal Kulkarni, et al, "Implementation of Low Power and area efficient carry select Adder", *International Journal of Research in Engineering, Science and Management*, 2019, Vol 2, Issue 4, pp. 183-184.
- [14]. Karale Nikita, Jadhav Supriya, et al, "Design of Vehicle system using CAN Protocol", *International Journal of Research in Applied science and Engineering Technology*, 2020, Vol 8, issue V, pp. 1978-1983, <http://doi.org/10.22214/ijraset.2020.5321>.
- [15]. Dr. J. Sirisha Devi, Mr. B. Sreedhar, et al, "A path towards child-centric Artificial Intelligence based Education", *International journal of Early Childhood special Education*, 2022, Vol 14, Issue 03, pp. 9915-9922.
- [16]. Kutubuddin Kazi, "Lassar Methodology for Network Intrusion Detection", *Scholarly Research Journal for Humanity science and English Language*, 2017, Vol 4, Issue 24, pp.6853-6861.
- [17]. Mr. D. Sreenivasulu, Dr. J. Sirishadevi, et al, "Implementation of Latest machine learning approaches for students Grade Prediction", *International journal of Early Childhood special Education*, June 2022, Vol 14, Issue 03, pp. 9887-9894.
- [18]. Kazi Kutubuddin Sayyad Liyakat, Nilima S. Warhade, Rahul S. Pol, Hemlata M. Jadhav, Altaf O. Mulani, "Yarn Quality detection for Textile Industries using Image Processing", *Journal Of Algebraic Statistics*, July 2022, Vol 13, Issue 3, pp. 3465-3472.
- [19]. Prof. Kazi K.S., Miss Argonda U A, "Review paper for design and simulation of a Patch antenna by using HFSS", *International Journal of Trends in Scientific Research and Development*, Jan-Feb 2018, Vol 2, issue-2, pp. 158- 160.
- [20]. Ms. Yogita Shirdale, et al, "Analysis and design of Capacitive coupled wideband Microstrip antenna in C and X band: A Survey", *Journal GSD-International society for green, Sustainable Engineering and Management*, Nov 2014, Vol 1, issue 15, pp. 1-7.
- [21]. Prof. Kazi Kutubuddin Sayyad Liyakat, "Situation Invariant face recognition using PCA and Feed Forward Neural network", *Proceeding of International Conference on Advances in Engineering, Science and Technology*, 2016, pp. 260- 263.
- [22]. Prof. Kazi Kutubuddin Sayyad Liyakat, "An Approach on Yarn Quality Detection for Textile Industries using Image Processing", *Proceeding of International Conference on Advances in Engineering, Science and Technology*, 2016, pp. 325-330.
- [23]. Ms. Shweta Nagare, et al., "Different Segmentation Techniques for brain tumor detection: A Survey", *MM-International society for green, Sustainable Engineering and Management*, Nov 2014, Vol 1, issue 14, pp.29-35.
- [24]. Miss. A. J. Dixit, et al, "A Review paper on Iris Recognition", *Journal GSD International society for green, Sustainable Engineering and Management*, Nov 2014, Vol 1, issue 14, pp. 71-81.



- [25]. Prof. Suryawanshi Rupali V, et al, "Situation Invariant face recognition using Neural Network", *International Journal of Trends in Scientific research and Development (IJTSRD)*, May-June 2018, Vol 2, issue-4, pp. 995-998.
- [26]. Ms. Shweta Nagare, et al., "An Efficient Algorithm brain tumor detection based on Segmentation and Thresholding", *Journal of Management in Manufacturing and services*, Sept 2015, Vol 2, issue 17, pp.19-27.
- [27]. Miss. A. J. Dixit, et al, "Iris Recognition by Daugman's Algorithm – an Efficient Approach", *Journal of applied Research and Social Sciences*, July 2015, Vol 2, issue 14, pp. 1-4.
- [28]. Kazi K. S., Shirgan S S, "Face Recognition based on Principal Component Analysis and Feed Forward Neural Network", *National Conference on Emerging trends in Engineering, Technology, Architecture*, Dec 2010, pp. 250-253.
- [29]. Ms. Yogita Shirdale, et al., "Coplanar capacitive coupled probe fed micro strip antenna for C and X band", *International Journal of Advanced Research in Computer and Communication Engineering*, 2016, Vol 5, Issue 4, pp. 661-663.
- [30]. Rahul S. Pole, Amar Deshmukh, Makarand Jadhav, et al, "iButton Based Physical access Authorization and security system", *Journal of Algebraic Statistics*, 2022, Vol 13, issue 3, pp. 3822-3829.
- [31]. Dr. Kazi Kutubuddin, V A Mane, Dr. K P Pardeshi, Dr. D.B Kadam, Dr. Pandayji K K, "Development of Pose invariant Face Recognition method based on PCA and Artificial Neural Network", *Journal of Algebraic Statistics*, 2022, Vol 13, issue 3, pp. 3676-3684.
- [32]. Ravi Aavula, Amar Deshmukh, V A Mane, et al, "Design and Implementation of sensor and IoT based Remembrance system for closed one", *Telematique*, 2022, Vol 21, Issue 1, pp. 2769- 2778.
- [33]. Kutubuddin Kazi, "Systematic Survey on Alzheimer's (AD) Diseases Detection", 2022, DOI: 10.13140/RG.2.2.22369.58722
- [34]. Kutubuddin Kazi, "A Review Paper Alzheimer", 2022, DOI: 10.13140/RG.2.2.11464.39684
- [35]. Kutubuddin Kazi, "Multiple Object Detection And Classification Using Sparsity Regularized Pruning On Low Quality Image/Video With Kalman Filter Methodology(Literature Review)" 2022, DOI: 10.13140/RG.2.2.19853.00488
- [36]. Kutubuddin Kazi, "Implementing YOLO", 2022, DOI: 10.13140/RG.2.2.13142.11841
- [37]. Kutubuddin Kazi, "Multiple Object Detection And Classification Using Sparsity Regularized Pruning On Low Quality Image/Video With Kalman Filter Methodology (Working)" 2022, DOI: 10.13140/RG.2.2.16497.56161
- [38]. Kutubuddin Kazi, "Multiple Object Detection And Classification Using Sparsity Regularized Pruning On Low Quality Image/Video With Kalman Filter Methodology (Different Techniques)" ,2022, DOI: 10.13140/RG.2.2.29919.33442
- [39]. Kutubuddin Kazi, "Multiple Object Detection And Classification Using Sparsity Regularized Pruning On Low Quality Image/Video With Kalman Filter (Hardware and software requirements)" 2022, DOI: 10.13140/RG.2.2.36630.22086
- [40]. M. Sunil Kumar, D. Ganesh et al, "Deep Convolution Neural Network based solution for detecting plan diseases", *International Journal of Pharmaceutical Negative Results*, 2022, Vol 13, Issue- Special Issue 1, pp. 464-471
- [41]. Dr. Kazi Kutubuddin et al , "Development of Machine Learning based Epileptic Seizureprediction using Web of Things (WoT)" , *NeuroQuantology*, 2022, Vol 20, Issue 8, pp. 9394- 9409
- [42]. Dr. K. P. Pardeshi et al, "Implementation of Fault Detection Framework for Healthcare Monitoring System Using IoT, Sensors in Wireless Environment", *TELEMATIQUE*, 2022, Vol 21, Issue 1, pp. 5451 - 5460
- [43]. Dr. B. D. Kadam et al, "Implementation of Carry Select Adder (CSLA) for Area, Delay and Power Minimization", *TELEMATIQUE*, 2022, Vol 21, Issue 1, pp. 5461 – 5474
- [44]. Salunke Nikita, et al, "Announcement system in Bus", *Journal of Image Processing and Intelligent remote sensing*, 2022, Vol 2, issue 6
- [45]. Madhupriya Sagar Kamuni, et al, "Fruit Quality Detection using Thermometer", *Journal of Image Processing and intelligent remote sensing*, 2022, Vol 2, issue 5.



- [46]. Shweta Kumtore, et al, “ Automatic wall painting robot Automatic wall painting robot”, Journal of Image Processing and Intelligent remote sensing, 2022, Vol 2, issue 6
- [47]. Kadam Akansha, et al, “Email Security”, Journal of Image Processing and Intelligent remote sensing, 2022, Vol 2, issue 6
- [48]. Mrunal M Kapse, et al, “Smart Grid Technology”, International Journal of Information Technology and Computer Engineering, Vol 2, Issue 6
- [49]. Waghmare Maithali, et al, “Smart watch system”, International Journal of Information Technology and Computer Engineering, Vol 2, Issue 6
- [50]. Shreya Kalmkar, et al , “3D E- Commers using AR”, International Journal of Information Technology and Computer Engineering, Vol 2, Issue 6.