International Journal Of Multidisciplinary Research In Science, Engineering and Technology (IJMRSET)

| ISSN: 2582-7219 | www.ijmrset.com |

| Volume 3, Issue 10, October 2020 |

A Roadway Management System for Students

Dr.C.K.Gomathy, N.Rewanth Sai Simha, N.Mohan Krishna

Assistant Professor, Department of CSE, SCSVMV Deemed to be University, Kancheepuram, Tamil Nadu, India

UG Scholar, Department of CSE, SCSVMV Deemed to be University, Kancheepuram, Tamil Nadu, India

UG Scholar, Department of CSE, SCSVMV Deemed to be University, Kancheepuram, Tamil Nadu, India

ABSTRACT: Using tracking data obtained from the smartphone and Internet survey, a data-driven machine learning method is proposed to identify student location. In this paper, smartphone-based GPS tracking data are targeted. Using GPS sensors, location of any student will be detected. Agroup of attributes, such as college GPS mapping, are derived to characterize the smartphone holders' travel status. In other words, the tracking points could be identified as being at the state of traveling or non-traveling, based on which the student violation during college times are easily detected.Generate payment related reminders and alerts and a daily, weekly, monthly, quarterly, to groups or individuals.Customized online payment forms can be created for authorized banks to collect fees on behalf of college.Get real time updates of fee collected related status. Students can check their attendance easily.

KEYWORDS: GPS, Student tracking, Location tracking, Machine Learning, Location Predication, Continues and Comprehensive Evaluation (CCE) Card.

I. INTRODUCTION

Now a days most of the people using the smartphones for our daily purpose. Because the android smartphones have the memory capacities, good processing speed and higher data transfer rate. Android is Linux based operating system with java support and it comes with open source software. Many maps based android application is available in the Google play store. Map is used to transit the users from one place to another Google map, GPS is used for finding the specific location in outdoor environment. Using this application people can easily find the location such as roads, bridges, airport, shopping malls, etc. GPS (Global Positioning System) is one of the popular navigation systems in the world. But it gives higher accuracy for outdoor environment not for indoor environment. Many university campus, shopping malls and organization are very large, so the people are difficult to find the location inside the shopping malls, university campus and organization. There are no effective features for finding the location inside the buildings. In the application, using the indoor location-based services is used to find the current location of the mobile clients. Indoor Location Based Services is the extension of location-based services. It is used for tracking the location inside the buildings or campus. Indoor Atlas android SDK is used for indoor navigation. The SDK offers the features like the indoor positioning with higher accuracy and obtaining floor level. In Indoor Atlas to track the desired location then update the floor details for desired location and after fixing the route inside the buildings.

II. RELATED WORK

In the existing system India has many numbers of colleges and teaching is one of the major activities providing employment to number of people who like to give knowledge to the people. Today many colleges of rural area are facing common problem like bunking the college lectures also meet with the accidents. Indian department of education arises question to the department for their irresponsibility. Education department also seeks records of all the students which are very difficult to maintain. This describes a prototype development of maintain the record of all the students titled RF-Id based Tracking & Attendance with GSM Module exclusively catering the need of Indian teachers.

Problems:

- There are many disadvantages in the conventional system.
- This system is less organized as well as has less flexibility.
- The system uses lot of paper which is wasted at the end of the day · It is time consuming as well as less user friendly.
- The system is less integrated as it does not hold together the different participants in system such as students, teachers, etc.
- Also it has less availability as students cannot access their attendance easily.

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Evaluating the feasibility of a passive travel survey collection in a complex urban environment

The combination of increasing challenges in administering household travel surveys and advances in global positioning systems (GPS)/geographic information systems (GIS) technologies motivated this project. It tests the feasibility of using a passive travel data collection methodology in a complex urban environment, by developing GIS algorithms to automatically detect travel modes and trip purposes. The study was conducted in New York City where the multi-dimensional challenges include urban canyon effects, an extreme dense and diverse set of land use patterns, and a complex transit network. Our study uses a multi-modal transportation network, a set of rules to achieve both complexity and flexibility for travel mode detection, and develops procedures and models for trip end clustering and trip purpose prediction. The study results are promising, reporting success rates ranging from 60% to 95%, suggesting that in the future, conventional self-reported travel surveys may be supplemented, or even replaced, by passive data collection methods

Using GPS Data Loggers to Replace Travel Diaries in the Collection of Travel Data

Urban and regional planners use travel demand models to estimate changes in transportation activity over time. These models predict the number of trips generated by households as a function of various demographic and socioeconomic considerations and also predict the number of trips attracted to various employment and commercial centers. These models also produce estimates for mode choice, distribution of trip destinations across the metropolitan region, and traffic volumes on various roads. Regional travel surveys, or travel diary studies, are used to collect the input and calibration data used to derive and validate travel demand models. Consequently, data collected from thousands of households across the region are analyzed to estimate current travel demand and to predict future travel demand. These regional travel estimates are also used to predict emissions from motor vehicles and serve as primary input data for air regional quality analyses. The accuracy and completeness of the household travel data obviously have a critical impact on model results.

Equipment Location in Hospitals Using RFID-Based Positioning System

Throughout various complex processes within hospitals, context-aware services and applications can help to improve the quality of care and reduce costs. For example, sensors and radio frequency identification (RFID) technologies fore-health have been deployed to improve the flow of material, equipment, personal, and patient. Bed tracking, patient monitoring, real-time logistic anal-yeses, and critical equipment tracking are famous applications of real-time location systems (RTLS) in hospitals. In fact, existing case studies show that RTL Scan improve service quality and safety, and optimize emergency management and time critical processes. In this paper, we propose a robust system for position and orientation determination of equipment. Our system utilizes passive (RFID) technology mounted on flooring plates and several peripherals for sensor data interpretation. The system is implemented and tested through extensive experiments. The results show that our system average positioning and orientation measurement outperforms existing systems in terms of accuracy. The details of the system as well as the experimental results are presented in this paper.

A state-of-the-art survey of indoor positioning and navigation systems and technologies

The research and use of positioning and navigation technologies outdoors has seen a steady and exponential growth. Based on this success, there have been attempts to implement these technologies indoors, leading to numerous studies. Most of the algorithms, techniques and technologies used have been implemented outdoors. However, how they fare indoors is different altogether. Thus, several technologies have been proposed and implemented to improve positioning and navigation indoors. Among them are Infrared (IR), Ultrasound, Audible Sound, Magnetic, Optical and Vision, Radio Frequency (RF), Visible Light, Pedestrian Dead Reckoning (PDR)/Inertial Navigation System (INS) and Hybrid. The RF technologies include Bluetooth, Ultra-wideband (UWB), Wireless Sensor Network (WSN), Wireless Local Area Network (WLAN), Radio-Frequency Identification (RFID) and Near Field Communication (NFC). In addition, positioning techniques applied in indoor positioning systems include the signal properties and positioning algorithms. The prevalent signal properties are Angle of Arrival (AOA), Time of Arrival (TOA), Time Difference of Arrival (TDOA) and Received Signal Strength Indication (RSSI), while the positioning algorithms are Triangulation, Trilateration, Proximity and Scene Analysis/ Fingerprinting. This paper presents a state-of-the-art survey of indoor positioning and navigation systems and technologies, and their use in various scenarios. It analyses distinct positioning technology metrics such as accuracy, complexity, cost, privacy, scalability and usability. This paper has profound implications for future studies of positioning and navigation.

| ISSN: 2582-7219 | www.ijmrset.com |

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Understanding individual human mobility patterns

Despite their importance for urban planning1, traffic forecasting2 and the spread of biological3–5 and mobile viruses6, our understanding of the basic laws governing human motion remains limited owing to the lack of tools to monitor the time-resolved location of individuals. Here we study the trajectory of 100,000 anonymized mobile phone users whose position is tracked for a six-month period. We find that, in contrast with the random trajectories predicted by the prevailing Levy flight and random walk models7, human trajectories show a high degree of temporal and spatial regularity, each individual being characterized by a time independent characteristic travel distance and a significant probability to return to a few highly frequented locations. After correcting for differences in travel distances and the inherent anisotropy of each trajectory, the individual travel patterns collapse into a single spatial probability distribution, indicating that, despite the diversity of their travel history, humans follow simple reproducible patterns. This inherent similarity in travel patterns could impact all phenomena driven by human mobility, from epidemic prevention to emergency response, urban planning and agent-based modelling

III. METHODOLOGY

A smartphone-based application for Android platform was exclusively developed to record GPS tracking data Moreover, a web-based survey is established to collect respondents' socio-economic/demographic information, as well as the information about home and work locations. The application installed on respondents' smartphones continuously records a series of GPS tracking point information including user ID, timing, latitude, longitude, altitude, and etc. Specifically, user ID is the number designated to each respondent, timing, latitude and longitude are the temporal coordinate and spatial coordinate of GPS tracking points.

- If the location of the respondents exceeds the prefixed mapping of the college location.
- Then an intimation is sent to the respective Management that the student is out of college location.
- Generate payment related reminders and alerts and a daily, weekly, monthly, quarterly, to groups or individuals.
- Customized online payment forms can be created for authorized banks to collect fees on behalf of school.
- Get real time updates of fee collected related status.

ADVANTAGES

1. Low power consumption
2. Flexible and reliable
3. More reliable than manual operation
4. Automatically controlled and easy to use

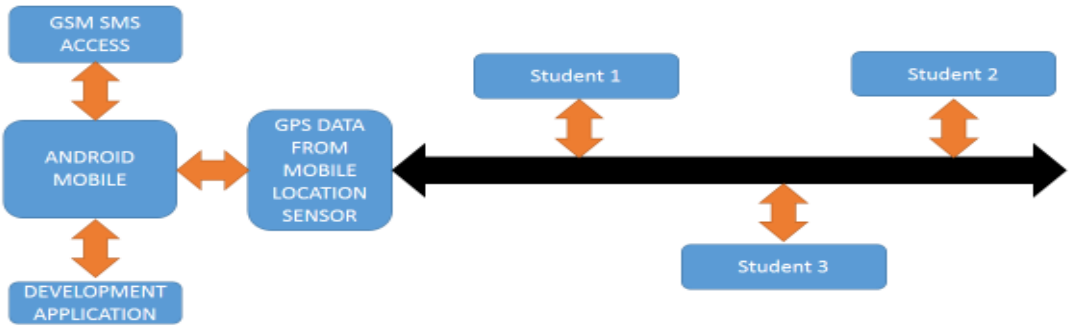

Fig 1: GPS Location Tracking System

| ISSN: 2582-7219 | www.ijmrset.com |

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The mobile location sensor architecture is derived in following steps:

- Location will be given to GSM through mobile location sensor by accessing application in mobile.
- From that application SMS will be delivered to GSM.
- GPS data from mobile location sensor will give the exact location of students.
- If location of any student that exceeds the given premises, SMS will be sent to staff.
- By opening the application user can access their attendance.
- By setting remainders, user can be alarmed.
- Application also shows fees details of students.

MODULES

Student Attendance Module

Track attendance records of each student for any Student Attendance Module given period of time. Find attendance statistics about a class. Information can be available for the principal, students, teachers and parents. Automatic SMS can be set to send to the parents on student not attending the class. Easily integrate with any access card or bio metric-based attendance system and capture the in time and out time. Generate payment related reminders and alerts and a daily, weekly, monthly, quarterly, to groups or individuals. Customized online payment forms can be created for authorized banks to collect fees on behalf of school. Get real time updates of fee collected related status.

Student Tracking Module

Capture and the different studentTracking Module record all parameters of a student as per CCE Card, which student to bunk the class. The Management can track measures taken by student to intimate the message.

APPLICATION

- Student application
- Management Application

STUDENT APPLICATION

The student application will be designed to provide easy and automated attendance to the management of the organization.

MANAGEMENT APPLICATION

The management application will be most crucial part in this application suite. As we have seen in student application

IV.WORKING PRINCIPLES AND RESULTS

By starting this application, user asked to register with their mobile number and password. Then user should login with their mobile number and password in login form. After the login the application will ask to select either view notice or fees details. If the user selects view notice, it will display the location of that particular student and it will also display the date and whether the day is working day or not. If user selects fee details, then it will show the fees details of that particular student

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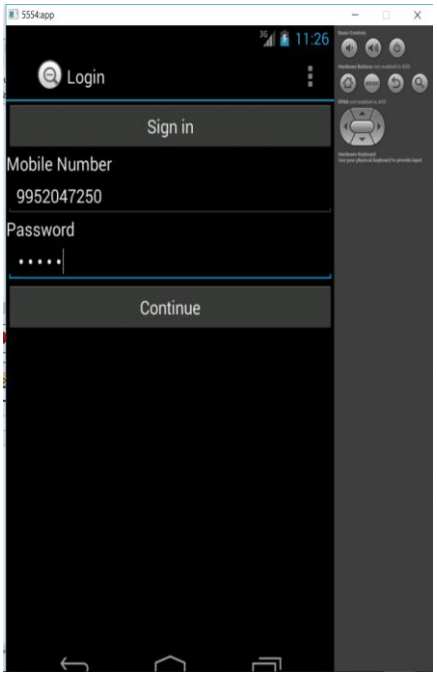

Fig 2: Login Form

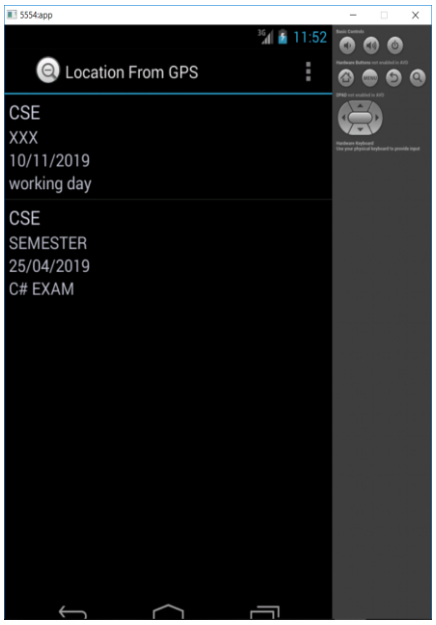

Fig 3Location Form GPS

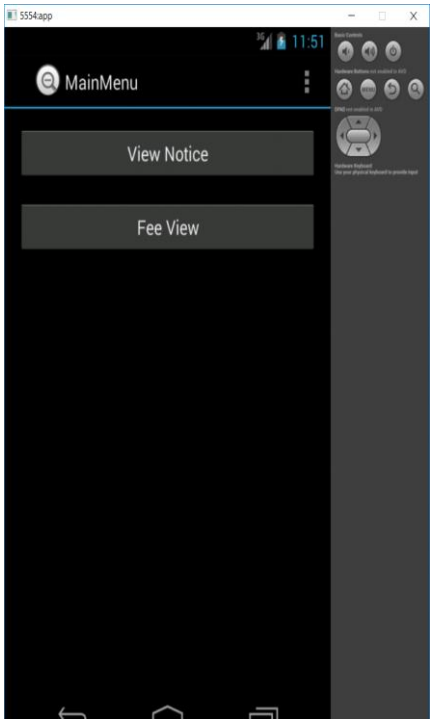

Fig 4: View Notice

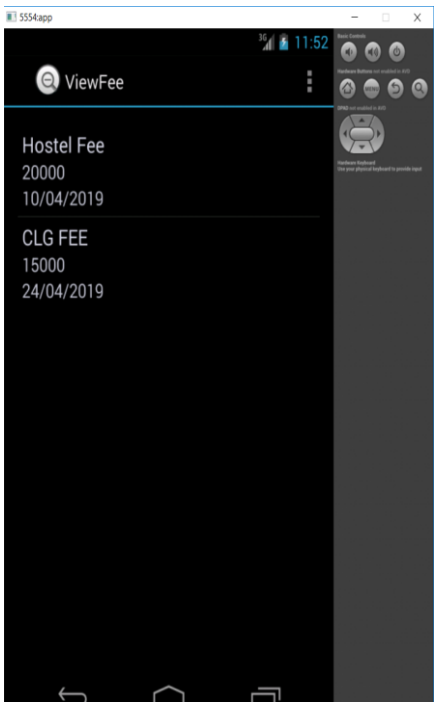

Fig 5: View Fee Details

| ISSN: 2582-7219 | www.ijmrset.com |

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V.CONCLUSION

In this paper, smartphone-based GPS tracking data are targeted. A group of attributes, such as college GPS mapping, are derived to characterize the smart phone holders' travel status. In other words, the tracking points could be identified as being at the state of traveling or non-traveling, based on which the student violation during college times are easily detected.

VI. FUTURE SCOPE

With location and positioning technology continuing to take over new heights including most advanced GPS tracking and a whole contingent of technologies like geo-fencing, Beacons, etc. we can only expect future location trackers to be more powerful. GPS trackers these days are smaller and more power packed than what they were few years ago. GPS tracking devices are evolving and improving at a rapid space. Before you have the scope of getting familiar with the latest GPS technology advancements something new can take you for a surprise. Keeping this evolving scenario in mind we are going to focus on the future of GPS tracking systems, in all their attributes, from marketing to adaptability to new technology.

REFERENCES

1. N. Schuessler and K. Axhausen, "Processing raw data from global positioning systems without additional information," *Transp. Res. Rec., J. Transp. Res. Board*, no. 2105, pp. 28–36, 2009.
2. J. Wolf, "Using GPS data loggers to replace travel diaries in the collection of travel data," Georgia Inst. Technol., Citeseer, Tech. Rep., 2000.
3. J. Ogle, R. Guensler, W. Bachman, M. Koutsak, and J. Wolf, "Accuracy of global positioning system for determining driver performance para- meters," *Transp. Res. Rec., J. Transp. Res. Board*, no. 1818, pp. 12–24,2002.
4. Shirehjini, Ali Asghar Nazari *"Equipment* Location in Hospitals Using RFID-Based Positioning System", Information Technology in Biomedicine, IEEE Transactions on Volume: 16, Issue 6 ,Nov 2012.
5. A. N. Shirehjini , A. Yassin and S.Shirmohammadi "An RFID-based position and orientation measurement system for mobile objects in intelligent environments", IEEE Trans. Inst. Meas., vol. 61, no. 6, pp.1664 -1675,2012.
6. R. Tesoriero , J. A. Gallud, M. D. Lozano and V. M. R. Penichet "Tracking autonomous entities using RFID technology", IEEE Trans. Consum. Electron. vol. 55, no. 2, pp.650 -655 2009.
7. T. Feng and H. J. P. Zimmermann's, "Comparison of advanced imputation algorithms for detection of transportation mode and activity episode using GPS data," Transp. Planning Technol., vol. 39, no. 2, pp. 180–194, 2016.
8. D.-T. Pham, B. A. M. Hoang, S. N. Thanh, H. Nguyen, and V. Duong, "A constructive intelligent transportation system for urban traffic network in developing countries via GPS data from multiple transportation modes," in Proc. IEEE 18th Int. Conf. Intell. Transp. Syst., Sep. 2015, pp. 1729–1734.
9. C. Parsuvanathan, "Big data and transport modelling: Opportunities and challenges," Int. J. Appl. Eng. Res., vol. 10, no. 17, pp. 38038–38044, Jan. 2015.
10. Y. Asakura and E. Hato, "Tracking survey for individual travel behaviour using mobile communication instruments," Transp. Res. C, Emerg. Technol., vol. 12, nos. 3–4, pp. 273–291, 2004.
11. S. Itsubo and E. Hato, "Effectiveness of household travel survey using GPS-equipped cell phones and Web diary: Comparative study with paper-based travel survey," in Proc. Transp. Res. Board 85th Annu. Meeting, 2006, p. 13.
12. P. Stopher, C. FitzGerald, and J. Zhang, "Search for a global positioning system device to measure person travel," Transp. Res. C, Emerg. Technol., vol. 16, no. 3, pp. 350–369, 2008.
13. L. Stenneth, K. Thompson, W. Stone, and J. Alowibdi, "Automated transportation transfer detection using GPS enabled smartphones," in Proc. 15th Int. IEEE Conf. Intell. Transp. Syst., Sep. 2012, pp. 802–807.
14. E. Murakami and D. P. Wagner, "Can using global positioning system (GPS) improve trip reporting?" Transp. Res. C, Emerg. Technol., vol. 7, nos. 2–3, pp. 149–165, 1999.
15. M. C. González, C. A. Hidalgo, and A.-L. Barabási, "Understanding individual human mobility patterns," Nature, vol. 453, no. 7196, pp. 779–782, 2008.
16. J. Ogle, R. Guensler, W. Bachman, M. Koutsak, and J. Wolf, "Accuracy of global positioning system for determining driver performance parameters," Transp. Res. Rec., J. Transp. Res. Board, no. 1818, pp. 12–24, 2002.
17. W. Bohte and K. Maat, "Deriving and validating trip purposes and travel modes for multi-day GPS-based travel surveys: A large-scale application in The Netherlands," Transp. Res. C, Emerge. Technol., vol. 17, no. 3, pp. 285–297, 2009.