# Integrated GPS Location Tracking System

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**Abstract:-** An information driven AI technique is proposed to distinguish staff area. As GPS enables a management to maintain staff tracking and student tracking through mobile application, this application facilitates the staff to login through mobile phone and been tracked by admin. This application helps student to pay there hostel fee and exam fee. This application gives regular updates about college notifications which were posted by the management In past student use to not attend the class after the attendance gets over they use to walk out of class and college. It becomes major problem in many college. As by this student and staff are traced by admin and it is easy known where the student are as the admin gets the message notification if object are moves from the certain path this is typically done dependent on some predefined rules, a major problem in colleges as it is difficult to find staff in such situation this application is helpful for the student to asks directly to the admin and know where the particular staff pointed and solve there problem as it saves a lot time to students. A gathering of traits, for example, school GPS mapping, are inferred to describe the cell phone holders' movement status. In different words, the following focuses could be recognized as being at the condition of voyaging or non-voyaging, in view of which the staff infringement during college times are handily distinguished. structures can be made for approved banks to gather charges for the benefit of school. Get ongoing updates of expense gathered related status. The admin can track the location of any members using latitude, longitude.

**Keywords:-** *Indoor plan, Navigation module, Indoor plan infrastructure, GPS mapping, client ID, longitude, latitude.*

## I. INTRODUCTION

Almost all Institutions had major problem of student bunking the college for many years. The process of sporadically incompetent resulting in the management to track the student and college cannot appoint each class a coordinator to sit along with student. Succeeding this idea, have proposed an participation checking framework built in light of idea of web administrations which is executed as an Android versatile application that interconnects the database dwelling on remote server. The portable application will associate with database utilizing either internet or wifi innovation.

The mobile application developed is an efficient and very user friendly and is easy to use Android portable application for staff and student registration and easy to track staff and student within a particular geographical area

using the GPS facility. This application is enabled on staff and student android enabled mobile device and GPS facility has to be enable. Guide is utilized to travel the clients starting with one spot then onto the next Google map, GPS is utilized for finding the particular area in open air condition. Utilizing this application individuals can without much of a stretch discover the area, for example, streets, spans, air terminal, shopping centers, and so on. GPS (Global Positioning System) is one of the mainstream route frame work on the planet. Be that as it may, it gives higher exactness for open air condition not for indoor condition. Numerous college grounds, shopping centers and association are huge, so the individuals are hard to discover the area inside the shopping centers, college grounds and association. In the application, utilizing the indoor area based administrations is utilized to locate the present area of the portable customers. Indoor Location Based Services is the expansion of area based administrations. Indoor Atlas android SDK is utilized for indoor route. The SDK offers the highlights like the indoor situating with higher exactness and getting floor level. In Indoor Atlas to follow the ideal area at that point update the floor subtleties for wanted area and in the wake of fixing the course inside the structures.

## II. RELATED WORK

➢ *Assessing the attainability of an inactive travel study assortment in a complex urban condition*

The blend of expanding difficulties in managing family travel overviews and advances in worldwide situating frameworks (GPS)/geographic data frameworks (GIS) innovations, M cheng et al.[1], persuaded this venture. It tests the attainability of utilizing a latent travel information assortment system in a complex urban condition, by creating GIS calculations to consequently distinguish travel modes and outing purposes. The examination was directed in New York City where the multi-dimensional difficulties incorporate urban gulch impacts, an outrageous thick and differing set of land use designs, and a perplexing travel arrange. S Jha et al. [2]. Our examination utilizes a multi-modular transportation organize, a lot of rules to accomplish both intricacy and adaptability for movement mode discovery, and creates methodology and models for trip end grouping and excursion reason forecast. The investigation results are promising, announcing achievement rates running from 60% to 95%, proposing that later on, customary self-revealed travel studies might be enhanced, or even supplanted, by detached information assortment techniques

➢ *Utilizing GPS Data Loggers To Replace Travel Diaries In the Collection of Travel Data*

Urban and local organizers use make a trip request models to gauge changes in transportation action after some time. These models foresee the quantity of excursions produced by family units as an element of different segment and financial contemplations and furthermore anticipate the quantity of outings pulled, Masood et al.[3] in to different work and business focuses. These models likewise produce gauges for mode decision, dissemination of outing goals over the metropolitan area, and traffic volumes on different streets. Local travel overviews, or travel journal examines, are utilized to gather the information and alignment information used to infer and approve travel request models. Therefore, information gathered from a large number of family units over the district are broke down to appraise current travel request and to foresee future travel request. M.E.J Newan et al.[4] These local travel gauges are additionally used to foresee emanations from engine vehicles and fill in as essential info information for air provincial quality examinations. The exactness and fulfillment of the family unit travel information clearly critically affect model outcomes.

➢ *Gear Location in Hospitals Using RFID-Based Positioning System*

All through different complex procedures inside medical clinics, setting mindful administrations and applications can assist with improving the nature of mind and diminish costs. For instance, sensors and radio recurrence identification (RFID) innovations fore-wellbeing have been sent to improve the flow of material, gear, individual, and patient. Bed following, understanding observing, constant calculated butt-centric yeses,P.Railing et al.[5] and basic gear following are popular utilizations of ongoing area frameworks (RTLS) in emergency clinics. Indeed, existing contextual investigations show that RTL Scan improve administration quality and wellbeing, and advance crisis the executives and time basic procedures. Right now, propose a vigorous framework for position and direction assurance of hardware. Our framework uses aloof (RFID) innovation mounted on flooring plates and a few peripherals for sensor information translation. The framework is executed and tried through broad examinations. The outcomes show that our framework normal situating and direction estimation outflanks existing frameworks as far as exactness. The subtleties of the framework just as the exploratory outcomes are exhibited right now.

➢ *A best in class review of indoor situating and route frameworks and advances*

The examination and utilization of situating and route advances outside has seen a consistent and exponential development. In light of this achievement, there have been endeavors to execute these innovations inside, prompting various examinations. The vast majority of the calculations, procedures and advancements utilized have been actualized outside. Be that as it may, how they charge inside is distinctive out and out. Along these lines, a few advances have been proposed and actualized to improve situating and

route inside. Among them are Infrared (IR), Ultrasound, Audible Sound, Magnetic, Optical and Vision, Radio Frequency (RF), R.S Sutton et al.[6]Visible Light, Pedestrian Dead Reckoning (PDR)/Inertial Navigation System (INS) and Hybrid. The RF advances incorporate Bluetooth, Ultra-wideband (UWB), Wireless Sensor Network (WSN), Wireless Local Area Network (WLAN), Radio-Frequency Identification (RFID) and Near Field Communication (NFC). Also, situating strategies applied in indoor situating frameworks incorporate the sign properties and situating calculations. The predominant sign properties are Angle of Arrival (AOA), Time of Arrival (TOA), Time Difference of Arrival (TDOA) and Received Signal Strength Indication (RSSI), while the situating calculations are Triangulation, Trilateration, Proximity and Scene Analysis/Fingerprinting. This paper exhibits a cutting edge study of indoor situating and route frameworks and innovations, and their utilization in different situations. Y.Xiao et al.[7] It investigates particular situating innovation measurements, for example, precision, multifaceted nature, cost, security, versatility and ease of use. This paper has significant ramifications for future investigations of situating and route.

➢ *Understanding individual human portability designs*

Regardless of their significance for urban planning1, traffic forecasting2 and the spread of biological3–5 and versatile viruses6, our comprehension of the fundamental laws administering human movement stays restricted attributable to the absence of instruments to screen the time-settled area of people. Here we study the direction of 100,000 anonymized cell phone clients whose position is followed for a six-month time frame. find that, interestingly with the arbitrary directions anticipated by the common Levy flight and irregular walk models7 , human directions show a high level of transient and spatial consistency,J.Huang et al.[8] every individual being portrayed by a period free trademark travel separation and a critical likelihood to come back to a couple of exceptionally frequented areas. In the wake of revising for contrasts in movement separations and the inborn anisotropy of every direction, the individual travel designs breakdown into a solitary spatial likelihood dispersion, demonstrating that, in spite of the assorted variety of their movement history, people follow basic reproducible examples. This inalienable likeness in movement examples could affect all marvels driven by human versatility, from pandemic counteraction to crisis reaction, urban arranging and operator based demonstrating

In the current framework India has numerous quantities of universities and instructing is one of the significant exercises giving work to number of individuals who like to offer information to the individuals.W.Ahmed et al[9] Today numerous universities of provincial zone are confronting basic issue like bunking the school addresses additionally meet with the mishaps. Indian division of instruction emerges question to the office for their untrustworthiness. Instruction division likewise looks for records of the considerable number of understudies which are exceptionally hard to keep up. This depicts a model

improvement of keep up the record of the considerable number of understudies titled RF-Id based Tracking and Attendance with GSM Module only providing food the need of Indian instructors.

There are numerous weaknesses in the regular framework. This framework is less composed just as has less adaptability. The framework utilizes parcel of paper which is squandered by the day's end • It is tedious just as less easy to understand. P.Bogdan et al.[10] The framework is less incorporated as it doesn't hold together the various members in framework, for example, understudies, instructors, and so on. Also it has less accessibility as understudies can't get to their participation no problem at all.

## III.    PROPOSED FRAMEWORK

A cell phone based application for Android stage was only evolved to record GPS following information Moreover, an online overview is set up to gather respondents' financial/segment data, just as the data about home and work areas. The application introduced on respondents' cell phones constantly records aprogression of GPS following point data including client ID, timing, scope, longitude, elevation, and so forth. In particular, client ID is the number assigned to every respondent, timing, scope and longitude are the fleeting direction and spatial organize of GPS following focuses. If the area of the respondents surpasses the prefixed mapping of the school area. Then a suggestion is sent to the separate Management that the understudy is out of school area. Generate installment related updates and cautions and an every day, week by week, month to month, quarterly, to gatherings or people. Customized online installment structures can be made for approved banks to gather charges for the benefit of school. Get continuous updates of expense gathered related status.

➤ *Advantages of Proposed System*
• Low power utilization
• Flexible and solid
• More solid than manual activity
• Automatically controlled and simple to utilize

➤ *Proposed  Algorithm*

• *Decision Tree*
   Decision tree is the learning model, which utilizes classifications problem. Decision tree module works by splitting the dataset into minimum of two sets. Decision tree's internal nodes indicates a test on the features, branch depicts the result and leafs are decisions made after succeeding process on training.

Decision Tree works as follows
Step.1: Decision tree starts with all training instances linked with the root node
Step.2: It splits the dataset into train set and test set.

Step.3: It uses information to gain and chooses attributes to label the each node. Subsets made contain information with a similar feature attribute.
Step.4: Above process is repeated till in all subset until leafs get generated in tree.
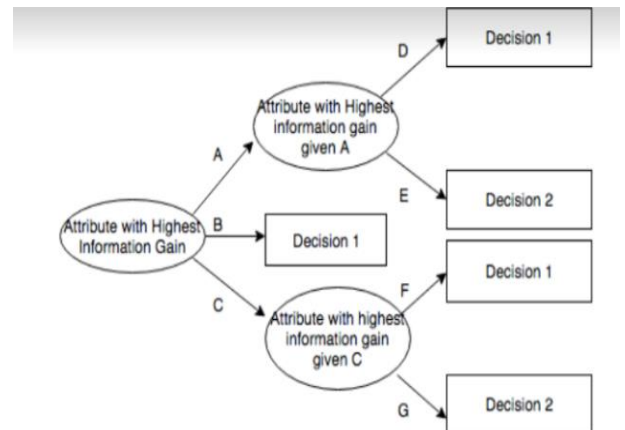


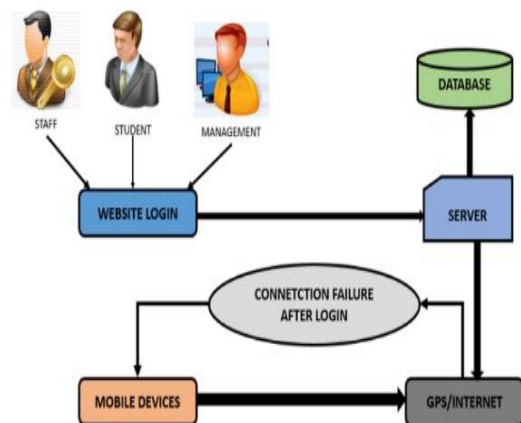Fig 1

➤ *System Architecture*



Fig 2

➤ *Notice Board Notification*
   Notices can be posted by teachers from their respective login and can be viewed on a notice board section of the application with title for a notice associated with it. The notices for a particular class will be broadcasted to that class only.

➤ *Fees Details*
   There is lots of information required in the education institution but  are concentrating on Student Information System (SIS) using Android, as it is very essential in day to day life in academic. The main purpose of the student management system is to provide student information, like, Student fees details, Timetable, Exam details, Event details, Placement. In our proposed system there are two phases, Admin and Student. The admin (staff) who has authentication for editing and modifying the details like exam details, fees details.

➢ *Staff Tracking Module*

Capture and the differing staff Tracking Module record all parameters of a staff as per CCE Card, which staff to bunk the class.

Management can follow measures taken by staff to indicate the message.

• *Application*
✓ Staff application
✓ Management Application

➢ *Staff Application*

The staff application will be proposed to give basic and modernized support to the organization of the affiliation.

➢ *Management Application*

The organization application will be most essential part at the present time. As have found in staff application.
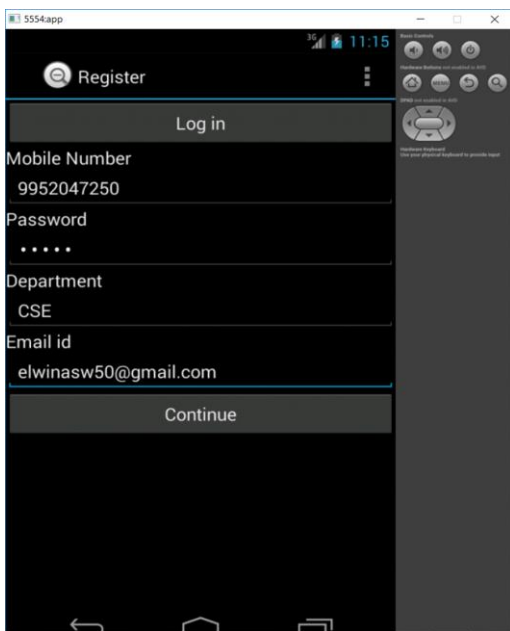
## IV. RESULTS



Fig 3:- Registration form

➢ *Database Notification*

The capacity of this module is to produce the rundown of staffs that who all are logged in then the admin can download the list from the database.

➢ *Staff Notification*

Add Details: Registration of log in with username, email id, password and mobile number.

Notification Bar: A notification bar will be keep on intimating the status of the staff login until they leave the premises and logs out.

➢ *Login Notification*

The staff should enter their valid user name and password for logging in other wise there login will not be validated and will not be able to pin their attendance
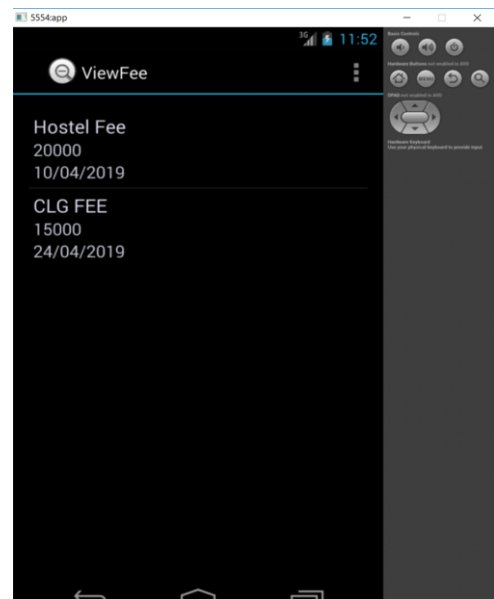


Fig 4:- Fee view form

Fee view form which helps student to pay college fee and hostel fee through this app and makes a lot of time saving standing in queue for paying fee.

➢ *Tracking Notification*

The tracking of staffs works when a staff want to track the exact location of the other staff. the GPS service should be enabled in both the mobile devices and the staff who tracks the other staff should be in motion so that the staff can reach the desired location. The phone number of the mobile of the respective staff will be stored in the server of admin
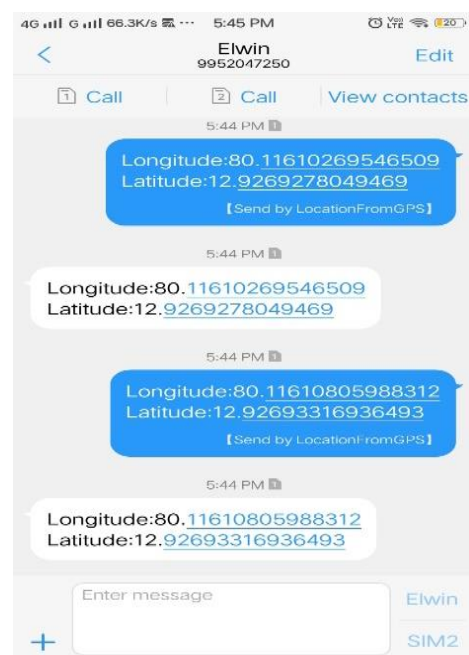


Fig 5:- Sms message

Sms is send to admin if staff and student passes away from particular path or if they leave the college.

## V. CONCLUSION

In this paper, cell phone based GPS following information are focused on. A gathering of characteristics, for example, college GPS mapping, are inferred to portray the cell phone holders' movement status. At the end of the day, the following focuses to track student and staff in college premises could be recognized as being at the condition of voyaging or non-voyaging, in view of app which provides easy way paying fee and to get notification details of college .

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