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Location Tracking of Multiple Object & Communication between Object

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Abstract: ***Nowadays android system is largely used in markets by the user. It has many applications which are used by the user in daily routine. One such application is navigation apps. Navigation is a technique which basically concentrates on the way toward observing and controlling the movement of person or vehicle or craft from one place to another place. In this project, the user registers on Android App with all information. User logs in with user name and password. The user selects type of ride- individual/Group ride. In Individual Ride, Find Route, make the individual ride with source and destination and show route on a map then start a ride. Current Ride shows current ride on the map. In Group Ride, Find Route and Make Group Ride select group with source and destination. Current Ride- Show Current Ride; if a user wants to stop then stop it. If resume rides, then a user will resume. Riders location- Show Current Rider Locations. Chat Make Group-User able to create a group with the selected user. Group Chat User chat with us. Setting will update user info and Notification ON/OFF. User Ride History, Show all ride of the user and also show on a map. User logout from App.***
Keywords: ***Aandroid, My SQL, JDK 7, Visual Studio, GPS.***

I. INTRODUCTION

In 2014, a human following examination was completed to dispense a man in an outside territory by the utilization of GPS. The examiner result was not fulfilling since the uprooting mistake was 4 meters far and shorter than it was normal. The fundamental reason for the past research was to recognize youngsters who some of the time became mixed up in an amusement stop or an open air wear focus. The exploration was conveyed in a specific shut zone; a building which is mostly utilized for huge game occasion, in Jakarta. Cell phones display an awesome chance to impact positive conduct change. In this paper the enlisted client login with all data than client login with client name, secret key. One client will make the gathering of a numeral of clients. Every individual from the gathering can apportion their area. At the point when Destination is select then App will indicate course from current area to the goal to every client. Each client can see the area of any individual from that gathering whenever through App. If any member switches from his regular route to some other route then notification (message) would be shown in the respective group. Message facility also provided in the system for sharing messages within groups and it will show current ride on the map and able to stop ride. Show the rider current location.

II. OBJECTIVES

Starts Ride - user selects ‘type of ride’ - Individual/Group ride

A. Individual Ride

1) Find Route - Make individual ride with source and destination and show route on map then start ride.

*2)*Rider Location - Show Current Rider Locations.

B. Chat

1) Make Group - User able to create group with selected user.

2) Group Chat - User chat with us.

C. User History

1) User Ride history – Show all ride of user and also show on map.

2) Burnt Calories - Show Burn Calories on Chart.

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Emergency Notification:- When user stop in one place then popup alert of emergency or take break condition will appear.

III. PROBLEM STATEMENT

To design and implement Android app for Location Tracking of multiple object using GPS and communication between object using GSM.

IV. LITERATURE SURVEY

A similar research experiment on the use of global positioning system (GPS) had successfully been published in 2014. In this paper, the research was continued by combining radio-frequency identification (RFID) and GPS in order to get better human tracking in both indoor and outdoor area. For indoor tracking, an RFID tag was carried by a user and continually read whenever he/she accessed a room while GPS was used mainly when the user was staying outdoor. GPS would be automatically activated whenever the user leaved the room 3 meters away. The accuracy of this tracking was 100% and the GPS could allocate the user every 3.27 meters. Thus this application is suitable to track the human position for both indoor and outdoor.

A good number of object tracking devices have been developed so far and are commercially available. However, the tracking features on most of these devices lack flexibility, and also the operational cost of most of these systems is high. On the other hand, various theft incidents involving vehicles, assets, kidnapping, etc. are on the increase. The objective of this paper is to develop a cost-effective and simple-to-use real-time object tracking system using off-the-shelf components. In this work a portable battery-operated object tracking system has been developed that can also sense environmental parameters like temperature.

Vehicle navigation systems rely on the correct positioning information and GPS is the best solution. However, in situations of GPS outage, like in tunnels and dense woods, the vehicle can lose track quickly. Modern vehicle navigation systems are mostly based on the vehicle dynamics; proprietary algorithms keep navigating for quite some time. But these solutions are expensive and add much to a vehicle's cost. This paper proposes a Kalman filter based dead-reckoning algorithm that fuses GPS information with the orientation information from a cheap IMU/INS, and the vehicle's speed accessed from its ECU. This low-cost system uses GPS and IMU/INS in a loosely coupled manner along with vehicle's speed and keeps supplying a quite accurate position information with GPS outage for significantly long intervals. With proper tuning and initialization, the proposed scheme has a potential to keep working in a completely GPS-denied situation.

In Malaysia, five million children commute to school daily. There are approximately 40 percent of children use public and private vehicles to school. The busy schedule and hectic working lives of the parent are causing them not able to monitor the safety of their children in commuting to and from school. This project presents the design of a prototype, called KidBus.Tracker that tracks schoolchildren in school vehicles. The design includes the use of global positioning satellite (GPS) tracking as a way to track the school vehicle, while passive radio frequency identification (RFID) technology was used to record the children's presence in the vehicle. The data logged by the hardware would then be extracted and fed to a website in real-time. Parents would be able to monitor the school vehicle's movement while their children are on board through the KidBus.Tracker website.

Since GPS signal is not applicable indoors, vehicle tracking has proven a hassle in underground parking structures. Recent solutions highly rely on floor map to constraint inertial sensors noises. In this paper, we propose VeMap, a road map construction system using only smartphones inside vehicles. It saves effort-intensive and time-consuming business negotiations with building operators, and expensive personnel cost to gather such data. It fuses multiple sensors to calibrate inertial noises, and uses Dynamic Time Warping to align multiple trajectories. We represent the floor plan with occupancy grid mapping, and explore a vision-mobile joint algorithm to extract its skeleton and form the road map. VeMap is tested in a 250mx90m parking structure, and it can be directly used for driving navigation to free parking spaces.

Today's state-of-the-art methods for object tracking perform adaptive tracking by detection, meaning that a detector estimates the position of an object and adjusts its parameters to the objects appearance at the same time. We propose a novel learning framework for tracking multiple unknown objects in a video stream by detection. Proposed system tracks multiple objects in presence of occlusion, clutter and scaling. The object is defined by its location and extent in a single frame. The tracker follows the object from frame to frame. The detector localizes all appearances that have been seen so far and corrects the tracker if required. The learning estimates detectors errors and updates that in the future to avoid these errors. A novel learning method (P-N learning) which estimates the errors by a pair of experts: (i) P-expert observes missed detections, and (ii) N-expert observes false alarms. First, instead of heuristically defining a tracking algorithm, we discovered that a discriminative structure prediction model from labeled video data and capture the interdependence of multiple influence factors. In every next frame the aim is to calculate the location and extent of object or indicate that object is not present. There are different algorithms which perceive the object in real-time. This

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system proposes a model which uses template matching algorithm with modifications based on SURF algorithm and squared difference error method. The template matching is done based on comparison of image features. We develop a novel method of tracking based upon template tracking algorithm which crops the region of interest (ROI) from the selected live object from a video stream from trained object database. Matching feature is found by applying principle component analysis.

V. SYSTEM ARCHITECTURE

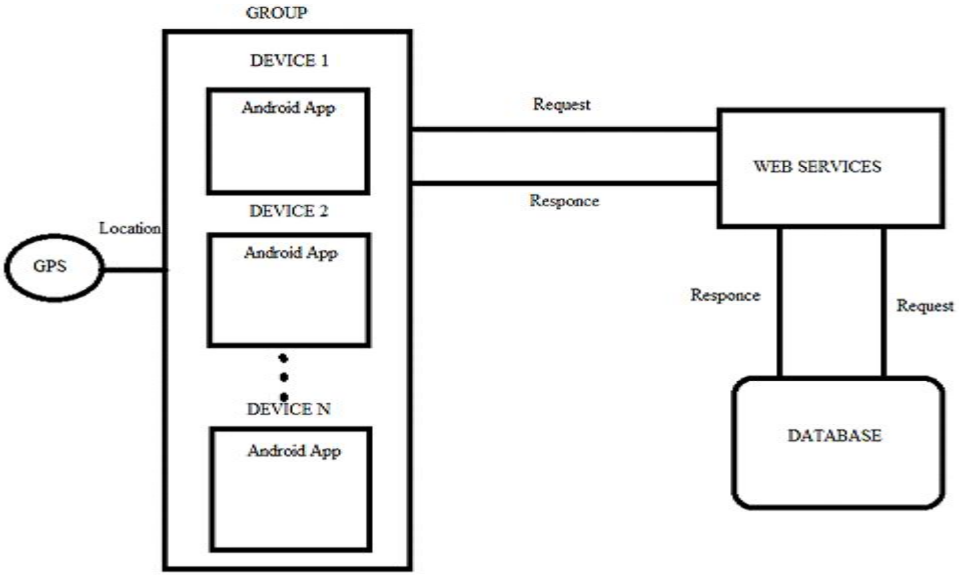


Fig.1. System Architecture

Above system architecture define the flow control of the system, this system is define with the GPS, mobile device, server and database. System can connect the number of devices which are connected to the web server to control the devices from centre location, this system also have a database connectivity which is storing the history of the users. To use the GPS we are using the Google's which provide the GPS facility to our system.

VI. ALGORITHM

A. Registration

1) Step 1: Register the User.
2) Step 2: Get Data from Sensor.
3) Step 3: call RU function
a) Step 3.1: Get U as Input to RU.
b) Step 3.2 : SUBMIT data
c) Step 3.3: Output as MESSAGE.
4) Step 4: call to LU Function
a) Step 4.1: Get CP as Input .
b) Step 4.2 : Call Function NLP
c) Step 4.3: Process NLP as Removing Stop Word.
d) Step 4.4 : Get Relevant Information
5) Step 5: Display Result.

B. Group Ride

1) Step 1: Accept a Data.
2) Step 2: Get Data from Sources.
3) Step 3: call SeA function
a) Step 3.1: Get U as Input to SeA.
b) Step 3.2 : SUBMIT data

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c) Step 3.3 : Output as MESSAGE.
4) Step 4: call to SD Function
a) Step 4.1 : Get CP as Input .
b) Step 4.2 :Call Function NLP
c) Step 4.3: Process NLP as Removing Stop Word
d) Step 4.4 : Get Relevant Information
e) Step 6: Stop.
5) *Trilateration Algorithm*
a) Trilateration is the way toward deciding right or relative areas of focuses by computing of separations, utilizing the geometry of circles, circles or triangles.
b) In expansion to its enthusiasm as a geometric issue, trilateration has useful applications in studying and route, including worldwide situating frameworks (GPS). As opposed to triangulation, it doesn't include the estimation of points.
c) In three-dimensional geometry, when it is realized that a point lies on the surfaces of three circles, at that point the focuses of the three circles alongside their radii give adequate data to limit the conceivable areas down to close to two (unless the focuses lie on a straight line).

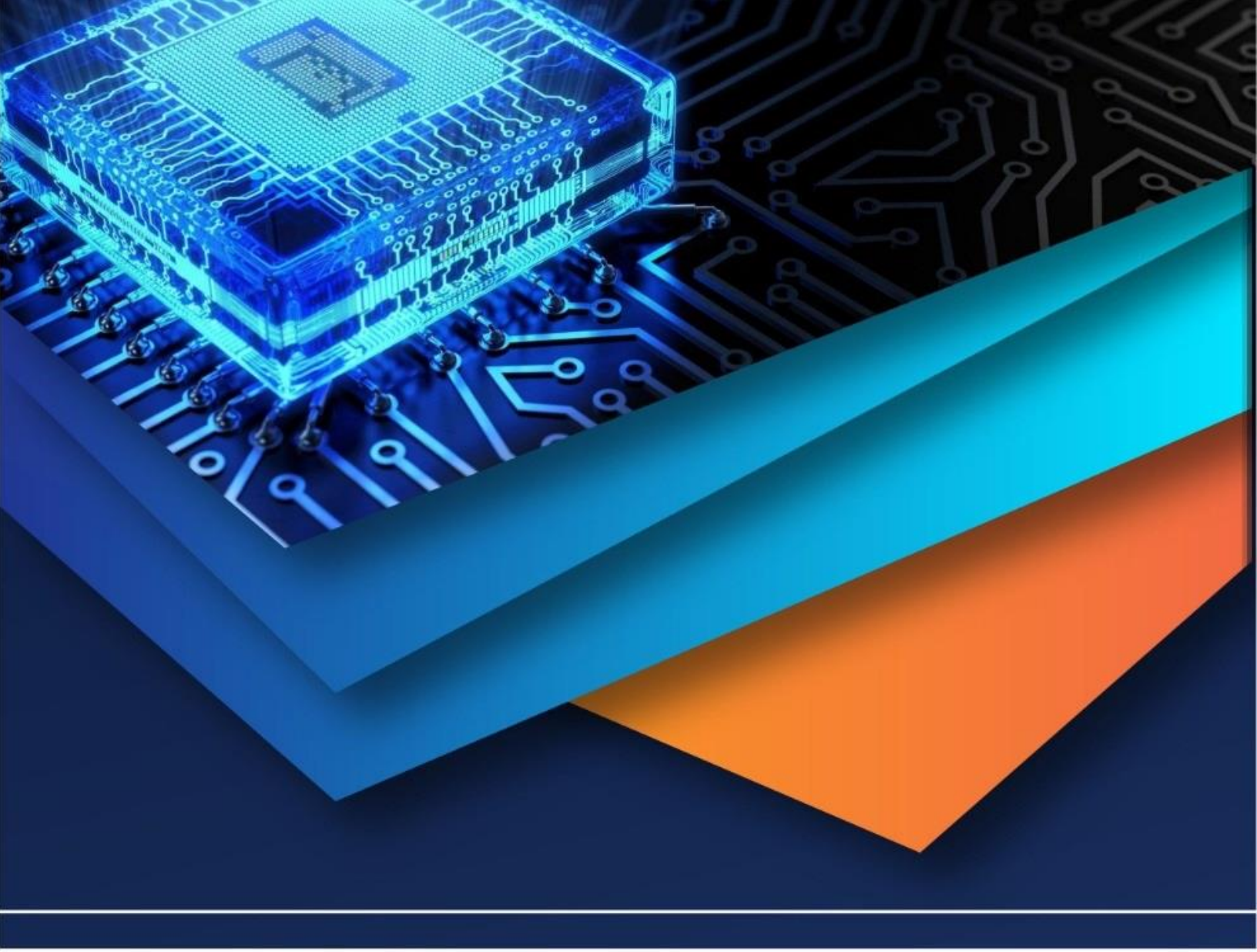
VII. CONCLUSION

We presented a system, which shows user location using a Trilateration Algorithm. Using such application we can find out the exact location of the user and update the user information accordingly. Also we will be capable to see the location of join members. We will show the user's ride history. We can observe the travelling route of the all members and if someone from the group does not know the route so using this app every user will find the route so easily exclusive of any hard work.

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