

STUDENT TRACKING SYSTEM USING MOBILE APPLICATION

Submitted in partial fulfillment of the requirements for the award of Bachelor of
Engineering Degree in Computer Science and Engineering
By

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **NANDHINI.S(Reg No.38290052)** and **PAVITHRA. D (Reg No.38290062)** who carried out the project entitled **“STUDENT TRACKING SYSTEM USING MOBILE APPLICATION”** under our supervision from November 2020 to March 2021.

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DECLARATION

NANDHINI.S(Reg No. 38290052) and PAVITHRA.D(Reg No. 38290062) hereby declare that the Project Report entitled **“STUDENT TRACKING SYSTEM USING MOBILE APPLICATION”** done by us under the guidance of **Dr. S.MURUGAN ME., Ph.D.**, is submitted in partial of the fulfillment of the requirements for the award of Bachelor of Engineering Degree in Computer Science and Engineering.

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ABSTRACT

In today's fast moving life services based on location has very much importance in everyone's life. As the trend is of smart phones, mobiles, iPhone, and all the gadget emerging today it's very important for the mobile user to have the location based services. Location based service can be elaborate as the services which uses the users geographical location which consist of X and Y coordinates, which is generated by GPS which acts as positioning device. This is called mobile tracking application for locating friends using LBS, which uses the GPS as location provider through geographic location for mobile network. Nowadays security of woman's is at the stake in our country this application includes anti-theft facility for the woman's or the user. When user feel unsecure then this application will provide save our souls like facility with the click of just one button it will give the location information to the parent mobile number whose static location and contact information is already stored in our database based on the location of the user's location. Location based services are used more frequently by the mobile users. A location based service is a location provider that is used to track the location of any mobile node through the mobile network that includes vehicular tracking system. This system mainly helps the user to track his/her friend's location inside the college campus and also other places. It is also checked by the college staff whether the student is present or not. If the student is absent then the immediate alert message is sent to the parent and it is verified. The user can view the location using the mobile application.

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LIST OF ABBREVIATION

S.NO	ABBREVIATION	EXPANSION
1	GPS	Global Positioning System
2	DFD	Data Flow Diagram
3	IDE	Integrated Development Environment
4	ADT	Android Development Tools
5	PHP	Hypertext Processor
6	RDBMS	Relational Database Management Systems
7	ICT	Information and Communication Technologies
8	SDK	Software Development Kit
9	GSM	Global System for Mobile
10	GPRS	General Packet Radio Service
11	APK	Android Package Kit
12	API	Application Program Interface
13	HTTP	Hyper Text Transfer Protocol
14	JVM	Java Virtual Machine
15	ASP	Application Service Provider
16	HTML	Hyper Text Markup Language
17	UML	Unified Modeling Language

CHAPTER 1

INTRODUCTION

1.1 General

The application offers an ability to work with location sensitive information. It will allow the user to login/register to the system. The user can also make friends by searching the application users and sending request to them. He/she can accept or reject the request received by from other application users. They can select particular friend from their friend list and can track their current location. This application has the concept of call and message to the parent at necessary times. This application can also be viewed by the parents to track his/her child location and also the staff at the college can also view and track the student by using their location services.

1.2 Background of the Study

In the existing paper work related to manage the student data by tracking the student attendance details, checking the student details manually. It is done using the web application and it cannot be tracked from place to place. This system is fully developed based on the website application and it can be monitored at necessary times.

The main objective of the proposed system is the user can manage the profile automatically based on the location value. A database with some location and their corresponding values are maintained.

1.3 Need of the Study

The student tracking system used to track and view the student location. It helps to track with handheld device to monitor the activities. It can easily figure out the student location and their details. It maintains the database which contain the some of the location and that corresponding values. It can find the distance between the current location and corresponding incident location. This is implemented both inside the college campus and also outside places can also be tracked by its parents, friends and staffs. However in there of tracking, applications have to suffer lot of the problems and difficulties of the tracking. It provides an easy way to track the student with the simple register ID.

1.4 Objective of the Project

The main objective of the project is to create an android application for managing the user to login/register to the system. This system can be tracked by anyone and from anywhere. The parents can also view the student location by using the latitude and longitude values. The staff should check whether the students of particular class is present. This system is mainly done by accepting the friend request of his/her friend to track and monitor the student. Immediate alert message and call is also sent to the parents

1.5 Problem Definition

Increase in the number of student missing cases. There is no safety measures for women. Tracking of students from anywhere and at anyplace becomes difficult.

1.6 Scope of the Project

Help parents to track their children easily. Provides safety for students. Easy for the staff's to update parents about students.

1.7 Background of the Study

Android tablets, smart phones and touchpad are very in demand in today's generation people are all having this kind of gadgets not too personal and business but it lessen the boredom from work and daily stressful life. With the explosive growth of the worldwide web, the people's need to be connected to be internet all the time increased and these devices proved to be extremely restrictive. As the variety of such needs increased the new breed of smart devices was needed that had capabilities to run customized/specialized to fulfill a user's computing and connectivity needs. These new devices were called smart phones.

1.8 Smartphone in our Life

Since their invention, smart phones undoubtedly have taken over our everyday life. People use them at all times and places. Today a smart phones can be used not only as a phone but also as a map, a music player, a digital video camera, a voice recorder, a book and a big range of different other gadgets that people use on a daily base. Statistics show that smart phones are the number one everyday object worldwide. The high popularity of smart phones has led many companies to invest in this fast growing industry by developing application specifically for such devices. This project aims to exploit the increasing popularity ownership through the development of an android OS application. Which will assist a big proportion of the students who already own such devices.

1.9 Android

Android is an open source Linux-bases operating system designed by Google for mobile and tablet devices. As an open source projects, the Android software development kit (Android SDK) is freely available and distributed on the internet while companies and developers can freely customize it because of its open nature and its popularity, the Android OS has led to the creation of a large online community, which provides support for the development of application for this OS.

1.9.1 Android Architecture

Android operating system (OS) can be considered as a software stack consisting of various layers, where each layer is a group of several different components. The layers are:

- Application
- services and libraries
- Native libraries, daemons and services
- The Linux kernel, which includes drivers for hardware, networking, file system access and inter-process-communication.

1.9.2 Main Principles

- Portability: Facilities movement of devices with in the mobile computing environment.
- Connectivity: Ability to continuously stay connected with minimal amount of lag/downtime, without being affected by movements of the connected nodes
- Social interactivity: Maintaining the connectivity to collaborate with other user, at least within the same environment.
- Individuality: Adapting the technology to suit individual needs.
- Portability: Devices/nodes connected with in the mobile computing system should facilitate mobility. These devices may have limited device capabilities and limited power supply but should have a sufficient processing capability and physical portability to operate in a movable environment.
- Connectivity: This defines the quality of services (QOS) of the network connectivity. In a mobile computing system, the network availability is expected to be maintained at a high level with the minimal amount of lag/downtime without being affected by the mobility of the connected nodes.
- Interactivity: The nodes belonging to a mobile computing system are connected with one another to communicate and collaborate through active transactions of data.
- Individuality: A portable device or a mobile node connected to a mobile network often denote an individual, a mobile computing system should be able to adopt the technology to cater the individuals needs and also to obtain contextual information of each node.

1.10 Technologies

Constructing a solution requires a set of tools and technology suitable for the specific project. Therefore, it was important to select among a variety of tools in order to produce the best outcomes. This section describes the reason for selecting each tools and why it fits specifically for this project. The technologies are:

- Programming language(java)
- Eclipse
- Android SDK
- Google maps API V2
- Android application
- Content providers
- Broadcast providers

1.11 Advantages of Mobile Application

- Apps are able to make a brand stay prominent in the minds of consumers.
- They help people stay connected.
- Apps are very cost effective for everyone.

1.12 Disadvantages of Mobile Application

- Apps must be made to work with each O/S platform.
- Large apps can be cumbersome.

1.13 SUMMARY

We are developing an android based user interface for tracking the student inside the college premises by using an application. Thus the overview of Student Tracking System has been discussed. The motivation of this project is also explained along with the introduction about the project and a brief knowledge about the techniques used are described.

CHAPTER 2

LITERATURE SURVEY

2.1 General

For developing any application the ground work must be done. The ground work includes the study of various available resources for developing the applications. This chapter deals with the literature survey done for developing the application.

2.2 Related works

[1] A Mobile Monitoring and Alert SMS System with Remote Configuration - A Case Study for Android and Fused Location Provider Tiago Coelho, Sara Paiva Instituto Politécnico de Viana do Castelo, Viana do Castelo, June 2015

One of the parent's main concerns nowadays it to know their children's whereabouts. Some applications exist to address this issue and most of them rely on internet connection which makes the solution expensive. In this paper we present a low cost solution, based on SMS, and with the ability to remotely configure the child monitoring process. We also present the architecture and the full flowchart of the child application whenever a SMS is received. This case study uses Android and the more recent location API – the Fused Location Provider. For obvious reasons, the security issue has been a concern, which resulted in a configuration module in the child application to specify to send authorized senders.

[2] Development of Smart Phone Based Student Attendance System- Md. Milon Islam, Md. Kamrul Hasan, MdMasumBillah, and Md. Manik Uddin, Dec 2017

Student's attendance tracking is a vital issue in order to monitor students' performance in the classroom as well as in their studies. It becomes a key concern because the university authority maintains a rule that one student can only attend in the exam if his/her attendance is higher or equal to several percentages (60%, 70% or 80% etc.). The traditional attendance system needs student's to physically sign the attendance sheet each time for the attendance of each class. Using Smartphone like as Android Technology the course teacher will be able to take attendance easily by our designed mobile application and save the attendance. Using the stored information, this system is able to mark attendance, attendance percentage calculations and send SMS to the guardian to keep them updated about their child's attendance at the Institute. The designed system has an online access from any place and any moment which may extraordinarily assist the course teacher with keeping track of their student attendance.

[3] Navigation Technology to Meet New People Using Fused Location API - Bharath Ravi Prakash, Sanket S Kulkarni, 2019

There is always a need for improvement in the scope of technology used in our daily life. This paper consists of one such aspect that mainly concentrates on location updates of user. This is made possible by using the concept of fused location API. The Location APIs theoretical path points of interest in the area innovations, Fused Location Provider is utilized for obtaining area data with as decreased power use as could be expected under the circumstances and action acknowledgment for

enabling applications to adjust to the present activity of the Client. One advantage of using Fused Location is the ability to connect friends even if they are from different locations at different periods of time. The main concept was to design and develop an application which helps to keep track of friends. The proposed application is able to gather information of the phone's GPS locations from the phone and present the information in a simple and convenient way.

[4] Location Privacy and its Application - Bo liu, Wanleizhou, Tianqingzhu, Longxiang and Yong xiang, 2018

This survey represents the current research status of location privacy issues in mobile applications. The mainly focus on five aspects of study: the definition of location privacy, attacks and adversaries, mechanisms to preserve the privacy of locations, location privacy metrics, and the current status of location-based applications. Through this comprehensive review, all the interrelated aspects of location privacy are integrated into a unified framework. Additionally, the current research progress in each area is reviewed individually, and the links between existing academic research and its practical applications are identified. This in-depth analysis of the current state-of-play in location privacy is designed to provide a solid foundation for future studies in this field.

[5] Location Based Parental Control - Child Tracking APP using Android Mobile Operating System - Priyanka kumar, M.Raghul, 2018

In this location based services like GPS are emerging applications in mobile data services due to the rapid growth in wireless communication and location based positioning technologies. Now a days, mobile phone has become a powerful platform and necessary part of day-today life for communication among people. These emerging applications are helpful in emergency case and location tracking. For example, sometimes parents worry about child crimes like kidnapping or they get lost in the street. The child may put in the situation where they unable to call their parents even when their phone is too near to them. In this concept, we have considered these scenario proposed a location based parental control-child tracking app which is able to get child's sim details. In this proposed solution parents can get primary sim details that currently active in their phone and able to send a SMS command to their child phone.

[6] Design and Implementation of Children Tracking System Using ARM7 on Android Mobile Terminals - P. Santha Raj, V. Anuradha, September-2014

Recently, all over the world, crime against children is increasing at higher rates and it is high time to offer safety support system for the children going to schools. This paper focuses on implementing children tracking system for every child attending school. However the existing systems are not powerful enough to prevent the crime against children since these systems give information about the children group and not about each child resulting in low assurance about their child safety to parents and also does not concentrate on sensing the cry of the child and intimating the same to its parents. The proposed system includes a child module and two receiver modules for getting the information about the missed child on periodical basis. The child module includes ARM7 microcontroller (lpc 2378), Global positioning system (GPS), Global system for mobile communication (GSM), Voice playback circuit and the receiver module includes Android mobile

device in parent's hand and the other as monitoring database in control room of the school. Finally, implementation results for the proposed system are provided in this paper.

[7] Children Tracking System - Fairuz Rauf, GothiSwamySubramaniam, Zuraidy Adnan, July 2018

Child tracking system is an app that can track and monitor the child location. The aim of the project is to create a system to allow the parents to keep track of their kids when their child is out of their view. However, with the child tracking system the parent can track and monitor their child location in just a simple app when the parent is in office. A study on few existing tracking system have been done to gather the information and existing problem. Methodology applied in this project is Rational Unified Process (RUP) model. Data collection method which are questionnaire and interview also conducted to gather the user requirements and needs for the system. The result have been analyzed based on user responses. Most of the user (parents) agree and looking forward the system to be implemented.

[8] Implementation of Children Tracking System on Android Mobile Terminals - YuvrajRathod, ManojDighole, Ritu Sharma, Mar-2018

Recently in all over the world in every 40 seconds child becomes missing or kidnapped. The increasing prevalence of children wandering has many parents very concerned. We have to see and read many stories about children's or students who are kidnapped or not reaching homes. Most of the stories have had tragic endings. This paper focuses on implementing children tracking location system for every child attending school. Nowadays more children getting lost, Sen. Charles Schumer has proposed that the federal government provide funding for tracking devices for Autistic children so they do not go missing. These proposed tracking devices can be worn as wrist watches, anklets or in I -cards. The child modules include ARDUINO, Global positioning system, Global system for mobile communication.

[9] Location based Notification System - Mohit M. Kanfode, Sukriya D. Ambade, Amol P. Bhagat, 2018

An Android Application is created for location reminder and friendly suggestion. When a friend comes nearby 1 km area then the user gets notified on mobile. When a user sets location on a map and if a user enters that marked area then the mobile will start its alarm. Near Register Shops Offer Notification- when the user enters any area, if this area shops are added in the database then the user will notify offers of those shops. User location is continuously sent to a server (Using GPS). Admin Panel contains log in to admin for adding shops and deleting shops and by using shop log in, shop manager is able to add offers on a panel. The main purpose of location-based services is to provide services to customers based on the knowledge of their locations. Examples of these services include real-time traffic information, digital map services which are delivered to mobile terminals according to user's location to minimize data transmission, providing dynamic guidance services according to the users' location and current traffic condition requesting the nearest business or service.

[10] Autonomous Tracking Controller for Photovoltaic System using Global Positioning System - Kamil Plachta, 2018

This concept presents solution for autonomous tracking controller that tracks apparent position of the Sun on the celestial sphere. The device is designed and adapted to photovoltaic systems with wide range of power output. Applied the authorial tracking algorithm, which uses DSP processor to data processing from GPS and RTC module, accelerometer, gyroscope and magnetometer allowed to develop autonomous control device for tracking system. The presented solution automatically determines the angle inclination of photovoltaic surface in relation to direction of incidence solar radiation and resolution of step tracking system depending on weather conditions, time of day and latitude. The device does not require any interference by the user, it is fully autonomous. Obtained optimization of parameters the tracking system ensures an increase in power output by 2.1-9.3% in comparison to analogical solutions.

2.3 SUMMARY

In this chapter literature survey is done. It gives brief information about the related works similar to this project and knowledge about the techniques used. It is significant to know about the existing work to work on the proposed project.

CHAPTER 3

SYSTEM ANALYSIS AND REQUIREMENTS

3.1 GENERAL

System analysis as the process of studying a procedure or business in order to identify its goals and purposes and create systems and procedures that will achieve them in an efficient way. Another view system as a problem solving techniques that breaks down a system into its component pieces for the purpose of the studying how well these component parts work and interact to accomplish their purposes.

3.2 EXSISTING SYSTEM

The existing system manages the system data by tracking the student attendance details, checking the student profile manually. It done using the web application and it cannot be tracked from place to place. This system is fully developed based on the website application and can be monitored at necessary times.

3.2.1 PROBLEM DEFINITION

Frequent increase in the student missing cases. There is no safety measures for women. Tracking of students from anywhere and at anyplace becomes difficult.

3.3 PROPOSED SYSTEM

In the proposed system the user can manage the profile automatically based on the location value. We maintain the database which contains some of the locations and that corresponding values. We can find the distance between the current location and corresponding instance location. This is implemented both inside the college campus and also outside places can also be tracked by friends, parents and staffs. The system can track the devices for monitoring.

3.4 CONTRIBUTION AND SCOPE

Help parents to track their children easily. Provides safety for students. Easy for the staff's to update parents about students.

3.5 SYSTEM ARCHITECTURE

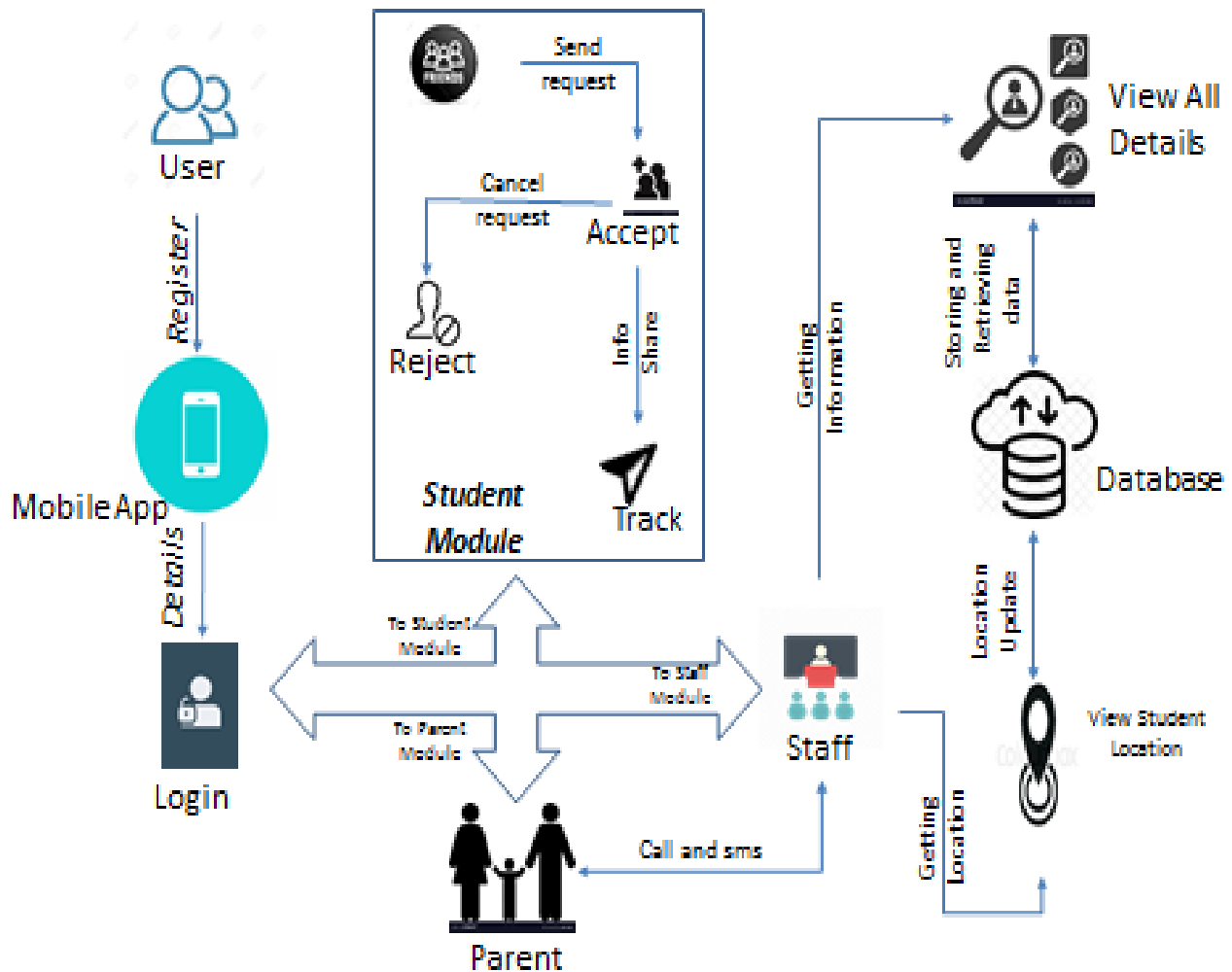
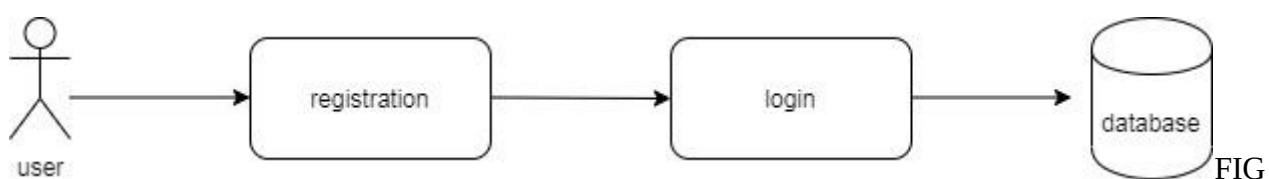


FIG 3:1 SYSTEM ARCHITECTURE

3.5.1 Registration and Login Module

In this module, the user can easily register through the application and create an account. If the new user wants to access the application he/she wants to register the valid username, registration number, department, email id, password, parent name, parent mobile number. The user needs to register the application using username and password. The details are stored in database.



3:2 REGISTRATION AND LOGIN MODULE

3.5.1.1 In Registration Phase

Username must be a string. The Password must have four to eight characters. Mobile number should be a valid ten-digit number. Email id of the user should be a valid one. Staff id must be a number.

3.5.1.2 In Login Phase

The registered email id should be used in the login. If user uses unregistered email id, application will display an error message “invalid login”. Only the email id which is registered in the particular application should be used for logging in.

3.5.2 Staff Module

In this module, the class staff representative should login into the application to view the student details and location. The staff can view the student full details and he/she can also track the student location. If the particular student is absent for class then the staff can immediately send the customized alert message or call the parent and intimate them.

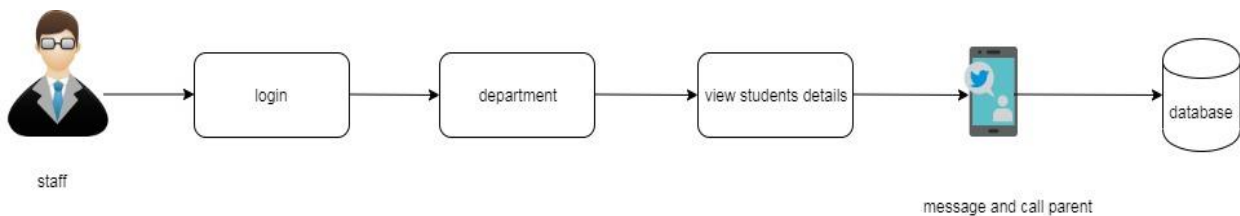


FIG 3:3 STAFF MODULE

3.5.3 Parent Module

The parent can login into the application. The parent can track their student location, view the location and they can know the place. The parent can also contact the staff through this module.

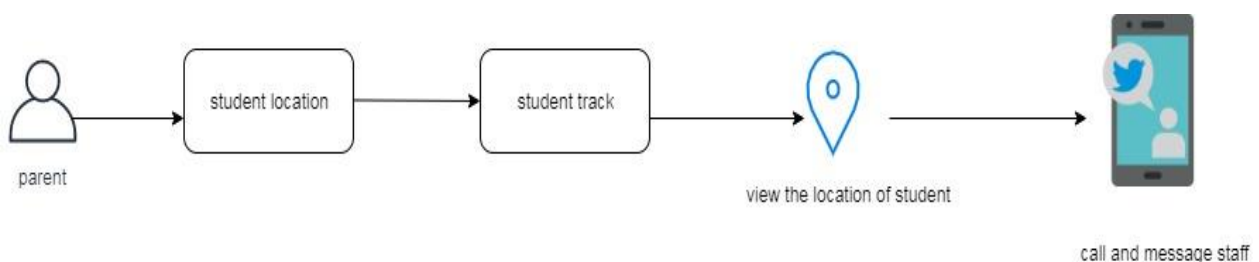


FIG 3:4 PARENT MODULE

3.5.4 Student Module

In this module, the student can view the student location of his/her close friend and they can track their friend current location. They can also know where his friend is located and it also shows the latitude and longitude position.

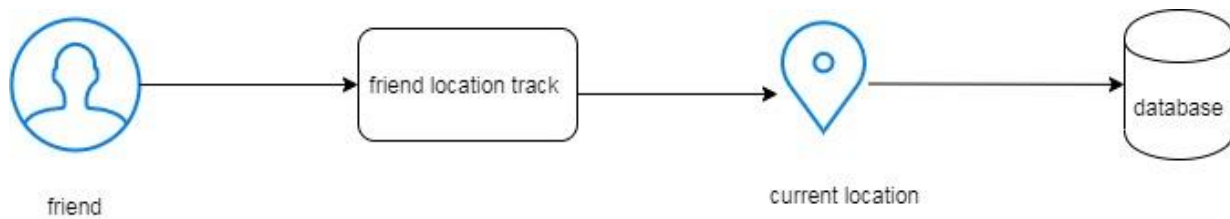


FIG 3:5 STUDENT MODULE

3.6 HARDWARE AND SOFTWARE REQUIREMENTS

3.6.1 Hardware Requirements

- Processor Pentium P4
- Motherboard Genuine Intel
- RAM Min 1GB
- Hard disk 80GB
- Mobile Android Based Smart Phones

3.6.2 Software Requirements

- Operating system Windows XP
- Technology used Android
- IDE Android studio
- Emulators AVD
- Plug-in ADT plug-in
- Database Firebase
- Tools used Android SDK

3.6.2.1 Android

The Android is a powerful operating system and it supports large number of applications in Smartphones. These applications are more comfortable and advanced for the android is an open source operating system means that it's free and any one can use it. The android has got millions of apps available that can help you managing your life one or other way and it is available low cost in market at that reasons android is very popular.

The android is a stack of software components which is divided into five sections and four main layers that is

- **Linux kernel**
- **Libraries**
- **Android runtime**

3.6.2.2 Android studio

Android Studio is the official integrated development environment (IDE) for Android application development. Every project in Android Studio has one or more modalities with source code and resource files. These modalities include Android app modules, Library modules and Google App Engine modules

Android Studio uses an instant Push feature to push code and resource changes to a running application. A code editor assists the developer with writing code and offering code completion, refraction and analysis. Applications built in Android Studio are then compiled into the APK format for submission to the Google Play Store.

Android Studio is available for MAC, Windows and Linux desktop platforms. It replaced Eclipse Android Development Tools (ADT) as the primary IDE for Android application development. Android Studio and the Software Development Kit can be downloaded directly from Google.

3.6.2.3 AVD

An Android Virtual Device (AVD) is a configuration that defines the characteristics of an Android phone, tablet, wear OS, Android TV or Automotive OS device that you want to simulate in the Android Emulator. The AVD Manager is an interface you can launch from Android Studio that helps you create and manage AVDs.

An AVD contains a hardware profile, system image, storage area, skin and other properties.

3.6.2.4 ADT plug-in

Android Development Tools (ADT) is a plugin for the Eclipse IDE that is designed to give you a powerful, integrated environment in which to build Android applications.

Note that before you can install or use ADT, you must have compatible versions of both the Eclipse IDE and the Android SDK installed

3.6.2.5 Firebase

Firebase is a Backend-as-Service (BaaS) that started as an YC11 start up and grew up into a next-generation app-development platform on Google Cloud Platform.

Firebase frees developers to focus crafting fantastic user experiences. You don't need to manage servers. You don't need to write APIs. Firebase is your server, your API and your data store, all written so generically that you can modify it to sit most needs.

3.7SUMMARY

This chapter mainly explains the main idea behind the proposed system and how it has been implemented with explanation of software and hardware requirements.

CHAPTER 4

SYSTEM DESIGN

4.1 GENERAL

The design of the application is explained in the forth-coming sub-division of the chapter. The UML diagrams where represented here with the necessary explanations.

4.2 UML DIAGRAMS

Design in the first step in the development phase for any techniques at principles for the purpose defining a device, a process or a system in sufficient detail to permit its physical realization. Once the software requirement have been analyzed and specified the software design involves three technical activities-design, coding, implementation and testing that are required to build and verify the software.

Design is the place where quality is fostered in development. Software design is a process through which requirements in two steps. Primarily design is concern with the transformation of requirements into data. There are various kinds of methods in software design. They are as follows:

- Use Case Diagram
- Class Diagram
- Sequence Diagram
- E-R Diagram

4.2.1 Use Case Diagram

Use Case Diagram modules behavior within a system and helps the developers understands of what the user required. Use Case Diagram can be useful for getting an overall view of the system and clarifying that can do and more importantly what they can't do, I consists of use cases, actors and shows the interaction between the use case and actors. Use case diagrams model the behavior within a system and helps the developers to understand what the user require which is shown in Fig 4.1. They are useful for presentations to management and/or project stakeholders, but for actual development you will find that use cases provide significantly more value because they describe "the meant" of the actual requirements. A use case describes a sequence of actions that provides something of measurable value to an action and it is drawn as a horizontal ellipse. The stick man represents what's called an actor. Use case diagram consists of use cases and actors and shows the interaction between the use case and actors.



FIG 4:1 USE CASE DIAGRAM

- The purpose is to show the interaction between the use case and actors.
- To represent the system requirements from the user's perspective.
- An actor could be the end-user of the system or an external system.

4.2.2 Class Diagram

Class is nothing but a structure that contains both variables and methods. The class diagram shows a set of classes, interfaces and collaborations and their relationships. There is most common diagram in modelling the object oriented systems and are used to give the static view of the system. It shows the dependency between the classes that can be used in our system. The interaction between the modules or classes of our project are shown below. Each block contains Class Name, Variables and Methods.

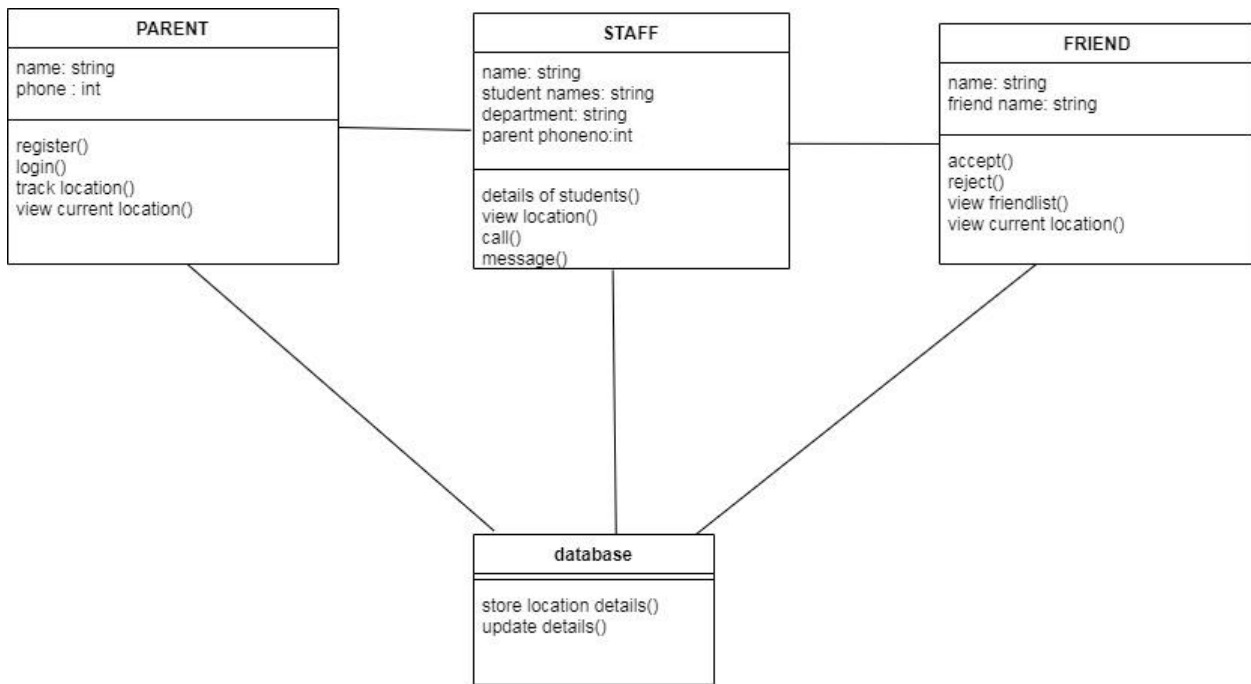


FIG 4:2 CLASS DIAGRAM

4.2.3 Sequence Diagram

Sequence Diagram and Collaboration Diagram are called as INTERACTION DIAGRAMS. An interaction diagram shows an interaction, consisting of set of objects and their relationship including the message that may be dispatched among them. Graphically a sequence diagram is a table that shows objects arranged along the X-axis and messages ordered in increasing time along Y-axis.

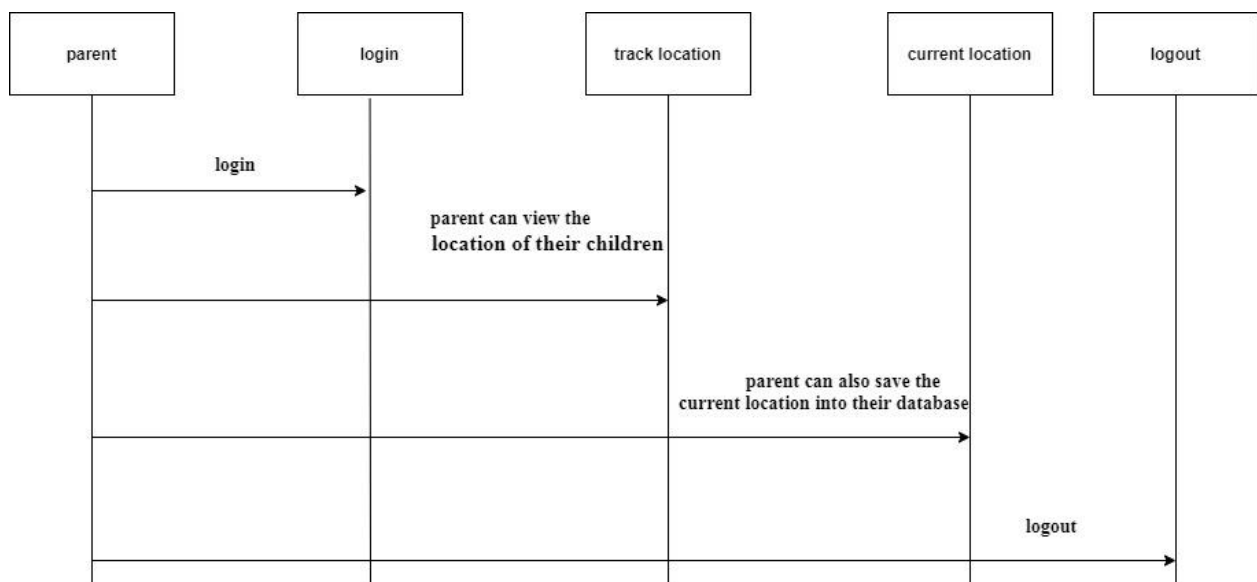


FIG 4:3 SEQUENCE DIAGRAM OF PARENT

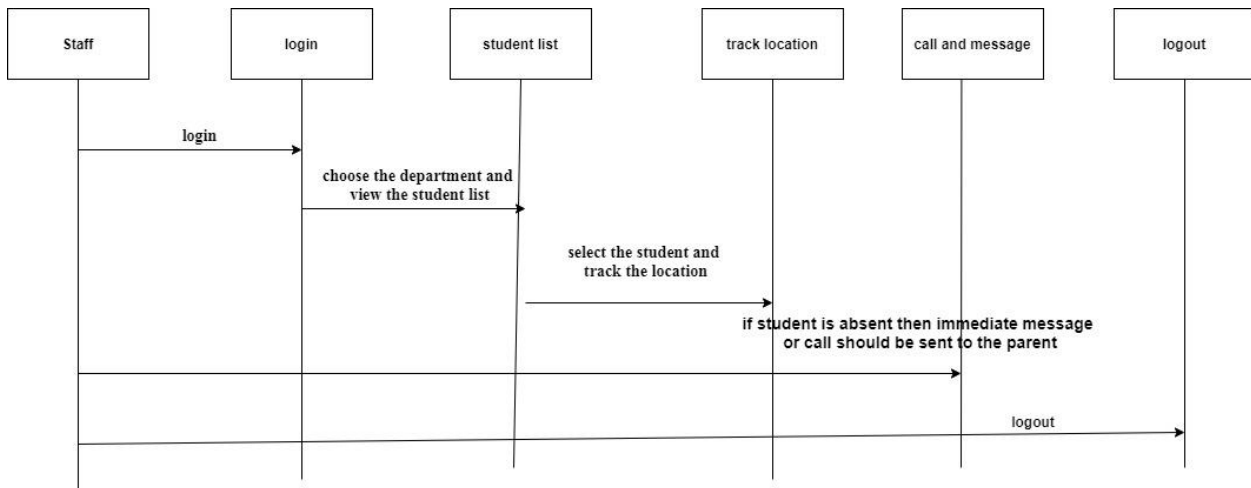


FIG 4:4 SEQUENCE DIAGRAM OF STAFF

4.2.4 E-R Diagram data objects

A Basic component of the model is the Entity-Relationship diagram which is used to visually represent data objects. Since Chen wrote his paper the model has been extended and today it is commonly used for database design for the database designer, the utility of the E-R model is:

- It maps well to the relational model. The constructs used in E-R model can easily be transformed into relational tables.
- It is simple and easy to understand with a minimum of training. Therefore, the model can be used by the database designer to communicate to design to the end user.
- In addition, the model can be used as a design planned by the database developer to implement a data model in specific database management software.

E-R Notations

The symbol used for the basics for E-R Constructs are

- Entities are represented by labelled rectangles. The label is the name of the Entity. Entity Names should be singular nouns.
- Relationship are represented by a solid line connecting two entities. The name of the relationship is written above the line.
- Attributes, which included are listed inside the entity rectangle. Attributes which are identifiers are underlined. Attributes name should be singular lines.
- Existence is represented by placing a circular or perpendicular bar on the line. Mandatory existence is shown by the bar(clicks like a 1) next to the entity for an instance is required. Optionally existence is shown by placing a circle next to the entity that is optional.

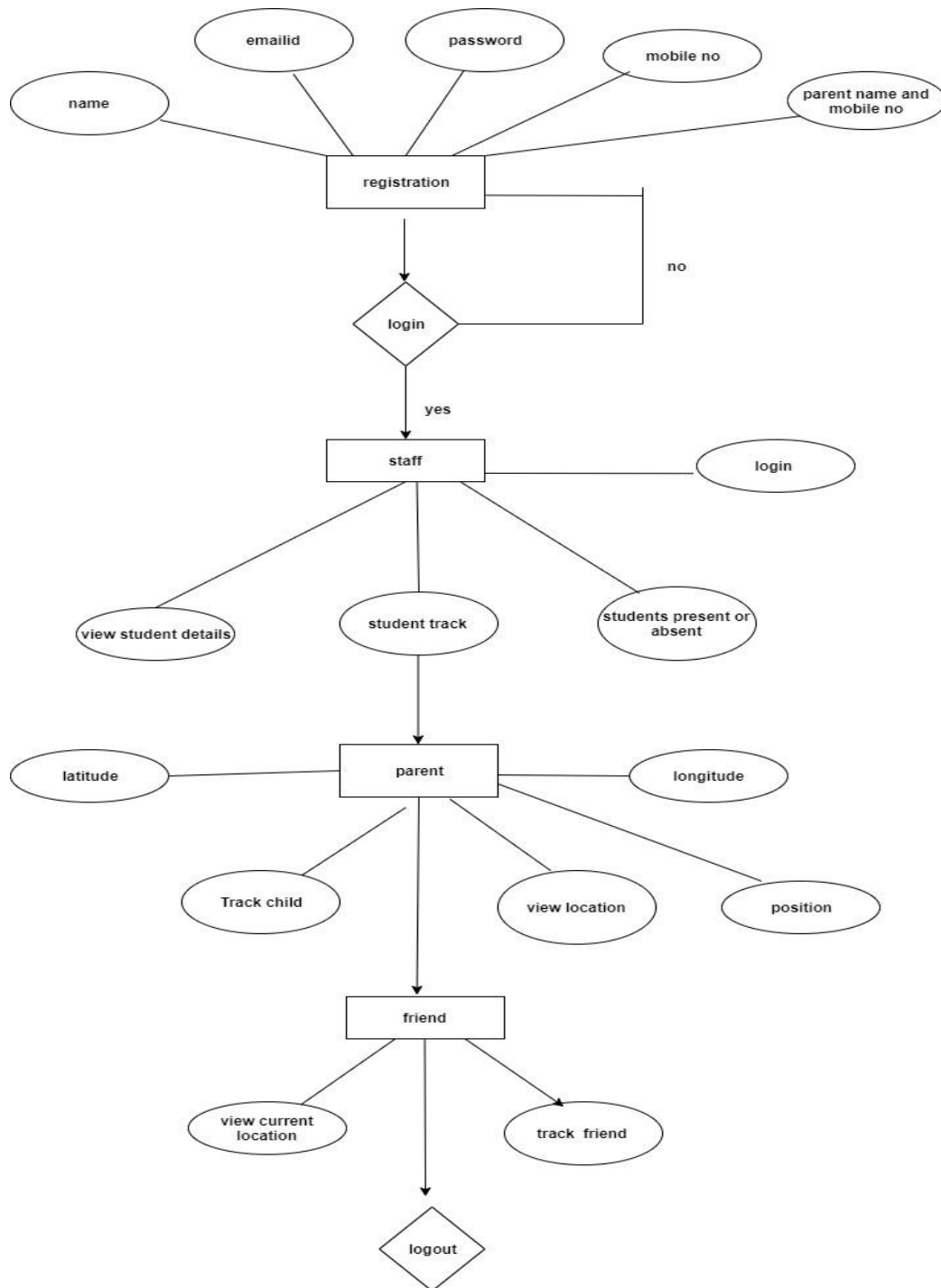


FIG 4:5 E-R DIAGRAM

4.3 DATA FLOW DIAGRAM

A data flow diagram (DFD) is a graphical representation of the “flow” of data through an information system, modelling its process aspect. A DFD shows what kind of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored. It does not show the information about the timing of processes, or the information about the process will operate in sequence or in parallel. A context level data flow diagram or level 0 DFD shows the interaction between the systems and external agents which acts as data source and data sink. On the context diagram the systems interaction with the outside world are modelled purely in the terms of data flows across the system boundary. The context diagram shows the entire system as a single process, and gives no clues as to its internal organization. Further levels of DFD shows more about the internal organization of the system.

4.3.1 Data Flow Diagram-Level 0

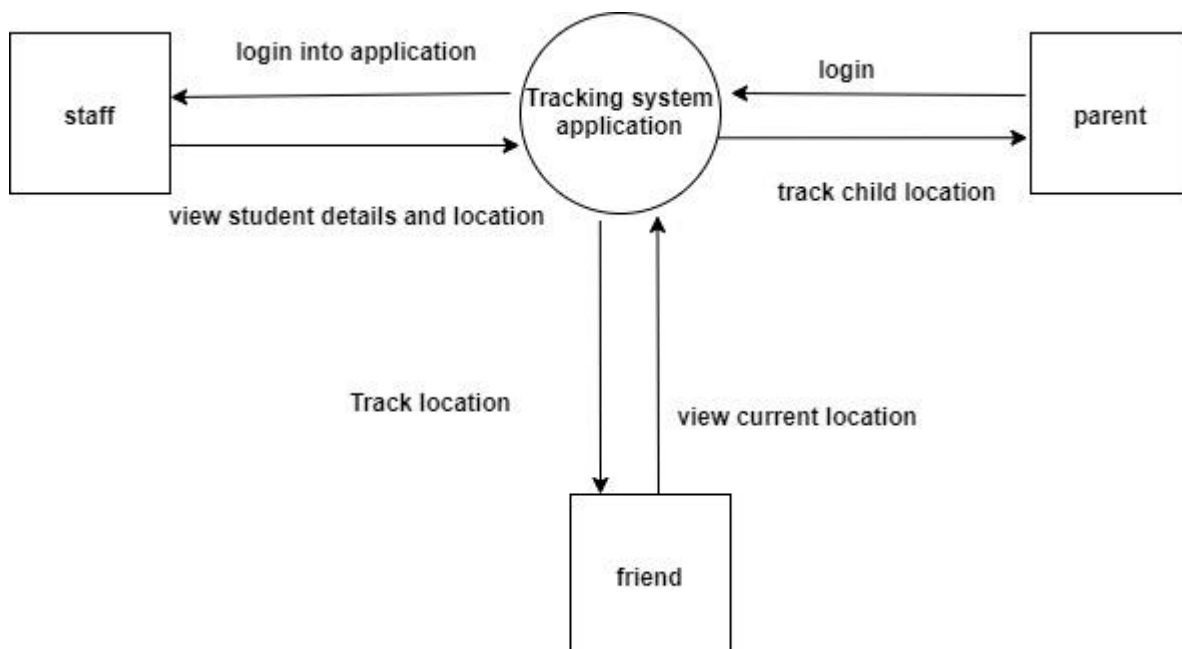


FIG 4:6 DFD-LEVEL 0

4.3.2 Data Flow Diagram-Level 1

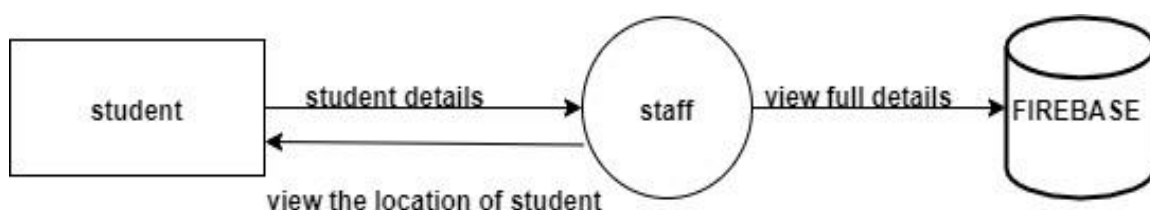


FIG 4:7 DFD-LEVEL 1

4.3.3 Data Flow Diagram-Level 2

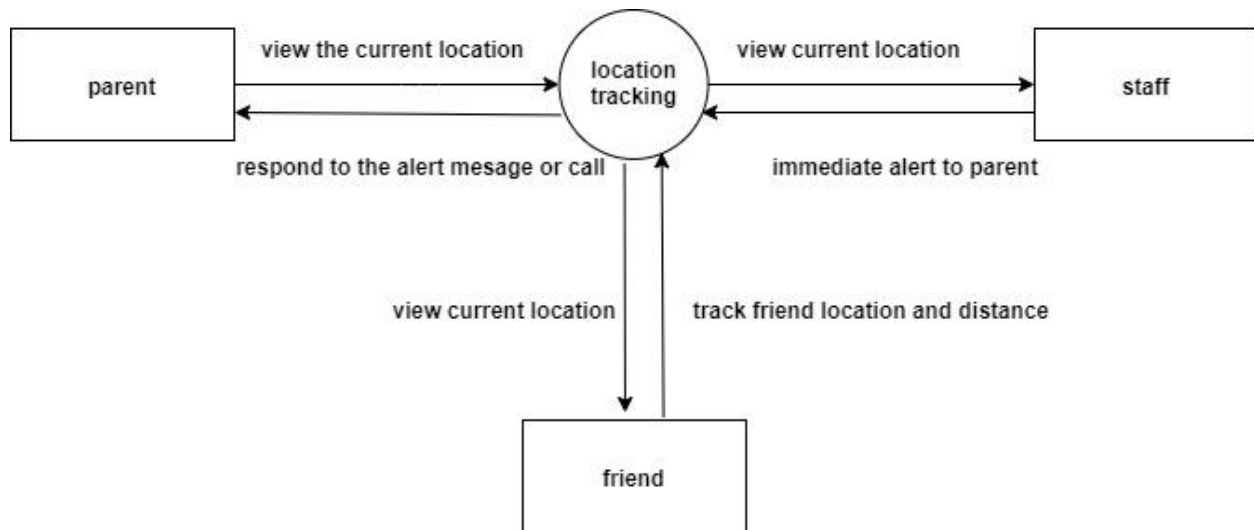


FIG 4:8 DFD-LEVEL 2

4.4 DATABASE DESIGN

Fields	Type	Constraint	Description
Username	Varchar(50)	Not Null	Primary key
Password	Varchar(50)	Not Null	Common Password

4.4.1 User Login

4.4.2 Register Details

Field	Type	Constraint	Description
Name	Varchar(50)	Not Null	Username
Email	Varchar(50)	Not Null	Common mail id
Phone no	Int\ (20)	Not Null	User phone no
username	Varchar(50)	Not Null	Common id
Password	Varchar(50)	Not Null	Common password
Parent name	Varchar(50)	Not Null	Name of parent
Parent mobile number	Int (20)	Not Null	Mobile number of parent
Field	Type	Constraint	Description
Name	Varchar(50)	Not Null	Username
Email	Varchar(50)	Not Null	Common mail id
Phone no	Int (20)	Not Null	User phone no
username	Varchar(50)	Not Null	Common id
Password	Varchar(50)	Not Null	Common password

Parent name	Varchar(50)	Not Null	Name of parent
Parent mobile number	Int (20)	Not Null	Mobile number of parent

4.5SUMMARY

Thus the various UML diagram where given in this chapter. Thus the design of the application is explained in this chapter. The notations used in the UML diagrams where also discussed here. Thus the purpose of various UML diagrams with needed explanation is discussed in this chapter.

CHAPTER-5

RESULT AND IMPLEMENTATION

5.1 GENERAL

This chapter explains about the implementation details of this project. Implementation is the most crucial stage in achieving a successful system and give the user confidence that the new system is workable and effective. Implementation is the stage of the project where the theoretical design is turned out into a working system.

5.2 IMPLEMENTATION

The Implementation of an android application comprises of 4 phases. They are:

- i. Home
- ii. Parent phase
- iii. StudentPhase
- iv. StaffPhase

5.2.1HOME

Home page has three buttons.

- Parent – for parent login
- Student– for student login
- Staff –for staff login

Home page with buttons is show in fig 5.1



FIG 5.1 HOME PAGE

5.2.2 PARENT PHASE

- Parent registration is shown in fig 5.2.
- Parent login shown in fig 5.3
- Parent tracking the students location is shown in fig 5.4



Parents Register Details

Parent Name
saroja

Email ID
saroja@gmail.com

Student Department
CSE

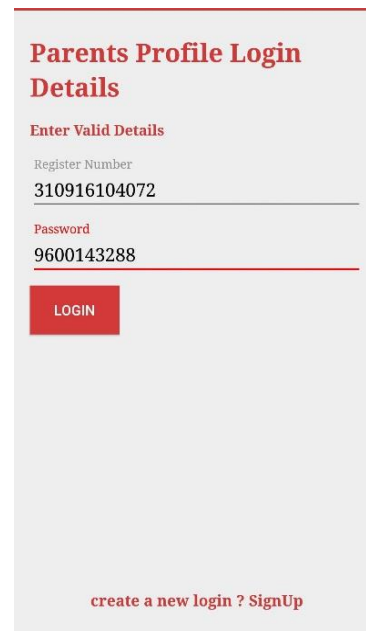
Student Register NO
310916104072

Parent Mobile Number
9600143288

Enter Valid Details
alread have a member id ?

>

Fig 5.2 PARENT REGISTRATION



Parents Profile Login Details

Enter Valid Details

Register Number
310916104072

Password
9600143288

LOGIN

create a new login ? SignUp

Fig 5.3 PARENT LOGIN

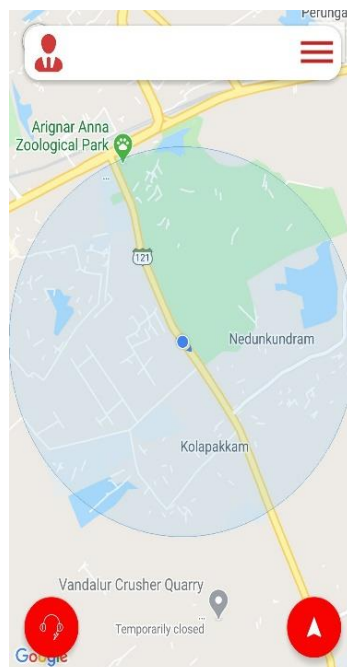


FIG 5.4 STUDENT LOCATION

5.2.3 STUDENT PHASE

Student registration shown in fig 5.5. Student login is shown in fig 5.6. Student profile shown in fig 5.7. Student friend's details fig 5.8.

Friends Register Details

Student Name
priya E

Email ID
priya.e2197@gmail.com

Department
CSE

Register NO
310916104072

Mobile Number
7550299449

Enter Valid Details
alread have a member id ?
>

Student Profile Login Details

Enter Valid Details

Register Number
310916104072

Password
7550299449

LOGIN

create a new login ? SignUp

Fig 5.5 STUDENT REGISTRATION

Fig 5.6 STUDENT LOGIN





priya E
priya.e2197@gmail.com
7550299449

Register Number
310916104072

Department
CSE

 My Account

 My Members

 Staff Details

Members Details

FRIENDS REQUEST SUGGESTION



Sonia
9710281906....CSE



Fig 5.7 STUDENT PROFILEFig 5.8 STUDENT FRIENDS DETAILS

5.2.4 STAFF MODULE

Staff registration shown in fig 5.9. Staff login shown in fig 5.10. Staff profile shown in fig 5.11. Student's update is shown in fig 5.12.

Staff Register Details

Staff Name
S.P.Manikandan

Email ID
csehod@gmail.com

Department
CSE

Staff ID
301

Mobile Number
9600143288

Enter Valid Details
alread have a member id ?

Staff Profile Login Details

Enter Valid Details

Staff ID
301

Password
9600143288

LOGIN

1 2 ABC 3 DEF -
4 GHI 5 JKL 6 MNO .
7 PQRS 8 TUV 9 WXYZ ✕
* # 0 + _ ✓

Fig 5.9 STAFF REGISTRATION Fig 5.10 STAFF LOGIN

 **S.P.Manikandan**
csehod@gmail.com
8344864479

Department
CSE

 My Account  Student Details

Fig 5.11 STAFF PROFILE

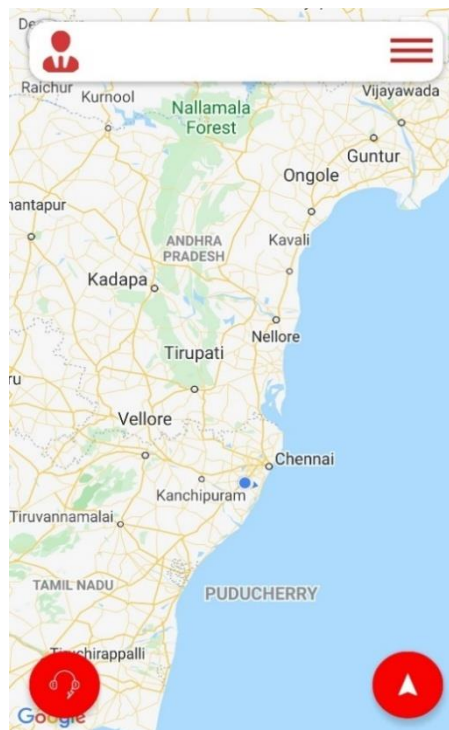


Fig 5.12 STUDENT'S TRACKED LOCATION

5.3RESULT

The output of the proposed system is that its help parents to track their children easily, provides safety for students and also easy for the staff's to update parents about students. In this proposed system create an android application for managing the user to login/register to the system. This system can be tracked by anyone and from anywhere. The parents can also view the student location by using the latitude and longitude values. The staff should check whether the students of particular class is present. This system is mainly done by accepting the friend request of his/her friend to track and monitor the student. Immediate alert message and call is also sent to the parents. The application offers an ability to work with location sensitive information. It will allow the user to login/register to the system. The user can also make friends by searching the application users and sending request to them.

5.4 SUMMARY

This chapter contains the input, output and intermediate process of each module. The functionality of the application is divided into four phases and flow of each phase is explained with the snapshots of the android application.

CHAPTER -6

CONCLUSION AND FUTURE WORK

6.1 CONCLUSION

The system can perform the following operations and the scope also relies on the functioning of the system as expected. The system is able to trace the location of a friend, and then this information is processed to be displayed on the user's phone. The system is able to trace the location of a group of friends on one screen. The group function is a feature intermediate server. When Friends mobile get the request for location, then it sends the Location details to friend or parent mobile. This method is mainly implemented for the women those are studying, working and staying at outside hostels. It delivers the instant location of the user by using the location based service. Care has been taken such that the location details will be confidential and cannot be leaked to an unknown identity without the acceptance of the user credentials.

6.2 FUTURE WORK

This application can be extended easily without affecting the functionality. There can be many more future enhancements and improvements in students tracking system. Further it can be expanded to introduction of the academic calendars with no of working days and allowing students to agree before signing up for the profile.

6.3 SUMMARY

This chapter gives an overview of the conclusion of the system and the future work that will make the system a better one

APPENDIX

SOURCE CODE

JAVA

Staff_Studdetails

```
package com.smile.collegeapp;

import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.TextView;

import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;
import androidx.recyclerview.widget.LinearLayoutManager;
import androidx.recyclerview.widget.RecyclerView;

import com.firebase.ui.database.FirebaseRecyclerAdapter;
import com.google.firebase.database.DataSnapshot;
import com.google.firebase.database.DatabaseError;
import com.google.firebase.database.FirebaseDatabase;
import com.google.firebase.database.Query;
import com.google.firebase.database.ValueEventListener;

import static android.content.Context.MODE_PRIVATE;

public class Staff_Studdetails extends Fragment {

    View v;
    Query q;
    RecyclerViewstudlist;
```

```

SharedPreferences sf;
TextViewnorec;

public Staff_Studdetails() {
    }

    @Nullable
    @Override
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup container,
        @Nullable Bundle savedInstanceState) {

        v = inflater.inflate(R.layout.staff_studedetails_frag , container , false);
        norec = v.findViewById(R.id.staff_studentslist_norecords);
        studlist = v.findViewById(R.id.staff_studentslist_recycleview);
        studlist.setHasFixedSize(true);
        studlist.setLayoutManager(new LinearLayoutManager(getContext()));

        sf = getActivity().getSharedPreferences("staff" ,MODE_PRIVATE);

        getdetails();

        return v;
    }

    @Override
    public void onResume() {
        super.onResume();

        q =
        FirebaseDatabase.getInstance().getReference("sugglist").orderByChild("dept").equalTo(sf.getString(
            "dept", ""));

        FirebaseRecyclerAdapter<Parameters, StaffStudentHold> frecycle = new
        FirebaseRecyclerAdapter<Parameters, StaffStudentHold>(
        Parameters.class,R.layout.frieds_memberslist_row, StaffStudentHold.class , q

```

```

    ) {

        @Override

protected void populateViewHolder(StaffStudentHoldviewHolder, Parameters parameters, inti) {

viewHolder.setdetails(getActivity() , parameters.getName() , parameters.getPhno() ,
parameters.getUrl() , parameters.getRegno() );

    }

};

studlist.setAdapter(frecycle);

}

public void getdetails()

{

    Query df =
    FirebaseDatabase.getInstance().getReference("sugglist").orderByChild("dept").equalTo(sf.getString
("dept",""));

    df.addValueEventListener(new ValueEventListener() {

        @Override

public void onDataChange(@NonNullDataSnapshotdataSnapshot) {

if(dataSnapshot.getValue()!=null)

        {

norec.setVisibility(View.INVISIBLE);

        }else

        {

norec.setVisibility(View.VISIBLE);

        }

        }

    }

    @Override

public void onCancelled(@NonNullDatabaseErrordatabaseError) {

}

}

```

```
});
```

```
}}
```

ViewHolderfrdsugg

```
package com.smile.collegeapp;
```

```
import android.content.Context;
```

```
import android.content.SharedPreferences;
```

```
import android.view.LayoutInflater;
```

```
import android.view.View;
```

```
import android.view.ViewGroup;
```

```
import android.widget.Button;
```

```
import android.widget.TextView;
```

```
import android.widget.Toast;
```

```
import androidx.annotation.NonNull;
```

```
import androidx.recyclerview.widget.RecyclerView;
```

```
import com.bumptech.glide.Glide;
```

```
import com.google.firebase.database.DataSnapshot;
```

```
import com.google.firebase.database.DatabaseError;
```

```
import com.google.firebase.database.DatabaseReference;
```

```
import com.google.firebase.database.FirebaseDatabase;
```

```
import com.google.firebase.database.Query;
```

```
import com.google.firebase.database.ValueEventListener;
```

```
import java.util.ArrayList;
```

```
import de.hdodenhof.circleimageview.CircleImageView;
```

```
import static android.content.Context.MODE_PRIVATE;
```

```
public class ViewHolderfrdsugg extends  
RecyclerView.Adapter<ViewHolderfrdsugg.ViewHolderAdapter1> {
```

```

Context c;

String ph;

SharedPreferences sf;


ArrayList<String>namlist = new ArrayList<>();
ArrayList<String>phlist = new ArrayList<>();
ArrayList<String>urllist = new ArrayList<>();
ArrayList<String>frdlist = new ArrayList<>();


public ViewHolderfrdsugg(Context c1, ArrayList<String> namlist1 , ArrayList<String> phlist1,
ArrayList<String> urllist1 , ArrayList<String> frd1)
{
this.c = c1;
this.namlist = namlist1;
this.phlist = phlist1;
this.urllist = urllist1;
this.frdlist = frd1;
}


@NonNull
@Override
public ViewHolderfrdsugg.ViewHolderAdapter1 onCreateViewHolder(@NonNull ViewGroup
parent, int viewType) {

LayoutInflater ly = LayoutInflater.from(parent.getContext());

View view = ly.inflate(R.layout.friends_frndssugglist_row, parent , false);

sf = c.getSharedPreferences("frieds",MODE_PRIVATE);


return new ViewHolderfrdsugg.ViewHolderAdapter1(view);
}


@Override

```

```

public void onBindViewHolder(@NonNull final ViewHolderfrdsugg.ViewHolderAdapter1 holder,
final int position) {

holder.req.setVisibility(View.INVISIBLE);

Glide.with(c.getApplicationContext()).load(urllist.get(position)).into(holder.propic);
holder.name.setText(namlist.get(position));

if(frdlist.size()==0)
{
holder.req.setVisibility(View.VISIBLE);
holder.sts.setText("make a friend request");
Toast.makeText(c.getApplicationContext() , "No friends" , Toast.LENGTH_SHORT).show();
}
else
{
DatabaseReferencedfcheck =
FirebaseDatabase.getInstance().getReference("Studentdetails").child(sf.getString("fid","")).child("fri
ends").child("accept");

Query q = dfcheck.orderByChild("phno").equalTo(phlist.get(position));
q.addValueEventListener(new ValueEventListener() {

@Override

public void onDataChange(@NonNull DataSnapshot dataSnapshot) {
if(dataSnapshot.getValue()==null)
{
holder.req.setVisibility(View.VISIBLE);
holder.sts.setText("make a friend request");
}
else
{
holder.req.setVisibility(View.INVISIBLE);
holder.sts.setText("Already your friend..");
}
}
}
}

```

```

        @Override
        public void onCancelled(@NonNull DatabaseError databaseError) {

            }

        });
    }

    holder.req.setOnClickListener(new View.OnClickListener() {

        @Override
        public void onClick(View view) {
            holder.req.setVisibility(View.INVISIBLE);
            SharedPreferences sf = c.getSharedPreferences("frieds", MODE_PRIVATE);
            DatabaseReference df =
            FirebaseDatabase.getInstance().getReference("Studentdetails").child(phlist.get(position)).child("friends").child("request");

            String key = df.push().getKey();
            df.child(sf.getString("fid", "")).child("phno").setValue(sf.getString("fid", ""));
            df.child(sf.getString("fid", "")).child("reqid").setValue(key);
            df.child(sf.getString("fid", "")).child("name").setValue(sf.getString("fname", ""));

            df.child(sf.getString("fid", "")).child("propic").setValue(sf.getString("fpic", "https://firebasestorage.googleapis.com/v0/b/peppy-coda-230114.appspot.com/o/sample%2Fuser.png?alt=media&token=3e16fd0d-a76b-4d72-a9eb-9e8ccd1efb3f"));

            Toast.makeText(c.getContext(), "request successful send",
            Toast.LENGTH_SHORT).show();

            }

        });

    }

    @Override
    public int getItemCount() {
        return namelist.size();
    }

```

```
public class ViewHolderAdapter1 extends RecyclerView.ViewHolder {

    CircleImageViewpropic;
    TextViewname,sts;
    Button req;

    public ViewHolderAdapter1(@NonNull View itemView) {
        super(itemView);

        propic = itemView.findViewById(R.id.frnd_sug_profile);
        name = itemView.findViewById(R.id.frnd_sug_name);
        sts = itemView.findViewById(R.id.frnd_sug_sts);
        req = itemView.findViewById(R.id.frnd_sug_btn);

    }
}
```

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