LITERATURE SURVEY

* IOT based Live Student Tracking System:

This paper was published on May 2020 , by IJRTE Journal . It focused on creating a IOT Based Student Tracking System for ensuring the safety and security of students. The main objective of the application is to build a smart watch for a school student. Now a days teachers and parents are

worry about children because of the large amount students are bunking their classes.

The system consists of school unit and bus unit which interact with the user. The school unit consists of a Bluetooth Low Energy device which is like a watch, that is used to send information once the student is out of Bluetooth range and if the watch is removed by the student and the bus unit consists of mobile module where the app is placed. The parents act like an end user, they can get a student exact location in their mobile phones. With this help of mobile application, the parents and teachers can lively track the students location.

Methodology :

* Arduino Nano:

The Arduino Nano is one of the basic model of ATMega328 .It is very compact and has high specifications and same functionality of Arduino ATMega328.It has the inbuilt functions of the Arduino UNO. Nano has various input and output ports in that USB port is mainly for programming

and monitoring of the device.

* Bluetooth Module:

This module is used in various protocol designs for the Bluetooth connectivity for pairing one device to another like connecting to mobiles, mouse, headset. It has high frequency and bandwidth can work on any place without the network.HC-05 module is a wireless communication used in

master or slave configuration.

* Battery 9V:

9v battery is small size battery which is handy and used in most of the places such as clocks, detectors.9v battery is made up of cells of alkaline and carbon-zinc types. Most of the testing’s are done only by this , it can be adjusted according to the needs. The positive and negative terminals relate to the wired which is on the top of the battery. Thus the live student tracking system tracks the location of the student thus ensuring safety and security of the student and providing relief to the parents.

* Android Application Suite for Student Tracking System:

This paper was published on May 2014 by International Journal of Computer Applications . It describes a proposed android application suite for student tracking system. This application suite will bridge the gap between the students, teachers higher authorities of college and the guardians.

Basically the proposed android suite will consists of series of android applications based upon the different participants. The different components will be as follows:

1. Student application.

2. Teacher application.

3. High command application.

4. Guardian application.

These are the broadly classified components of the suite.

Advantages:

This proposed system will be very beneficial to reduce the manual human work load. The advantages of the android application suite are listed below.

* Time efficient.
* High Integration and availability.
* Less Paper work.
* Easy to implement.
* Automated system.

Disadvantages :

* 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.

This Paper has proposed an extremely useful yet simple android application suite for student tracking. This application suite will be useful for all the participants allied to the student

tracking. This suite enhances the time factor efficiency as well as develops an ease to integrate all the factors easily. We can easily implement this suite in android as it is rapidly growing

technology and is easy to use. This paper also discusses the essential basic work flow of the suite which when followed will be easy to implement the same.

* Face Recognition Based Attendance System :

This Paper was published on February 2019 by IJEAT . Smart Attendance using Real-Time Face Recognition is a real-world solution which comes with day to day activities of handling student attendance system. Face recognition-based attendance system is a process of recognizing the students face for taking attendance by using face biometrics based on high - definition monitor video and other information technology. In my face recognition project, a computer system will be able to find and recognize human faces fast and precisely in images or videos that are being captured through a surveillance camera. Numerous algorithms and techniques have been developed for improving

the performance of face recognition but the concept to be implemented here is Deep Learning. It helps in conversion of the frames of the video into images so that the face of the student can

be easily recognized for their attendance so that the attendance database can be easily reflected automatically.

Methodology/ Working Principle:

* Capture video:

The Camera is fixed at a specific distance inside a classroom to capture videos of the frontal images of the entire students of the class.

* Separate as frames from the video:

The captured video needs to be converted into frames per second for easier detection and recognition of the students.

* Face Detection:

Face Detection is the process where the image, given as an input (picture) is searched to find any face, after finding the face the image processing cleans up the facial image for easier recognition of the face . CNN algorithm can be implemented to detect the faces.

* Face Recognition:

After the completion of detecting and processing the face, it is compared to the faces present in the students' database to update the attendance of the students.

* Post-Processing:

The post-processing mechanism involves the process of updating the names of the student into an excel sheet. The excel sheet can be maintained on a weekly basis or monthly basis to record the students' attendance. This attendance record can be sent to parents or guardians of students to

report the performance of the student.

* MAHITHI: An Android Application to Monitor Student’s Academic Activities:

This paper was published in 2018 by IJERT. The Android platform is a software stack for mobile devices including an operating system and key applications. Developers can create applications for the platform using the android SDK. Faculty and parents need to continuously monitor the student’s activities to be aware of any difficulties the student is facing so that they can take appropriate actions to solve them. In this paper an android application “Mahithi” has been proposed. It provides the

benefit for the following users like: student, faculty, parent and HOD to get the day-to-day updates of academic details like: attendance status, exam results, placements, time table

and notifications.

Methodology/Implementation:

From the system design of the project the various structural characteristics are obtained and the following modules are summarized:

1) Login 2) Faculty 3) Student 4) HOD 5) Parent 6) Sending message.

* Login

Step 1: User enters his registered user-id and password.

Step 2: If user-id and password are matching

then

user can login to application

else

user should re-enter the correct user-id and password.

* Faculty

Step 1: Login using valid user-id and password.

Step 2: Selects a semester and the particular subject.

Step 3: List of students will appear; he can select a particular student.

Step 4: He can enter or update student’s marks.

Step 5: He can also contact concerned parent of the student.

* Student

Step 1: Login using valid user-id and password.

Step 2: He gets all the details about his marks, attendance etc.

* HOD

Step 1: Login using valid user-id and password.

Step 2: Selects any semester and any subject.

Step 3: List of students will appear; he can select a particular student.

Step 4: He can enter or update student’s marks.

Step 5: He can also contact concerned parent of the student.

* Parent

Step 1: Login using valid user-id and password.

Step 2: Need to enter the USN of his child.

Step 3: He gets all the details about his marks, attendance etc.

* Sending Message

Step 1: Takes mobile number as input parameter.

Step 2: Message can be typed and sent to the concerned number.

An Android application has been proposed which was very useful to the educational institutions. By this application students and their parents can be able to view the marks, attendance status and comments given by the faculty to the particular student. HOD and Faculty have the privilege to enter the marks, attendance status and they can also give comments if any. HOD and Faculty can interact

with the parent of the student through whatsapp or SMS facilities. This application offers reliability and easy control.

* An Automated Student attendance tracking system based on Voiceprint and Location:

This paper was published on 2016 by Beihang University. Taking attendance has been widely used as a method to track students' academic behaviours. But conventional approaches are usually time consuming and inaccurate. In this paper, we have proposed an automated attendance tracking system, where students can use smartphones to submit attendance in parallel. Identity of a student is collaboratively verified by voiceprint and real-time location. Service isolation and token-based mechanism is applied specifically in the system as well, for the purpose of protecting users' privacy and the system's security. Tests in real world environment has demonstrated that our system is characterised as high efficiency and accuracy in tracking attendance.

Implementation:

* Initial Data Registration.
* Workflow of the attendance Recording.
* Voiceprint and Location Verification.
* Token based Security.
* Web Based Portal.

Tracking Student’s attendance in a class has always been time consuming. In this paper we have designed and implemented an automated attendance tracking system. Students complete the attendance taking procedure by their smart phones. A web Based Portal enables the lecturer to access the records in more interactive way.

* Real Time Student Tracking System Using RFID Tags and IOT Enabled Device:

This paper was published on April 2020 by In schools, colleges and institutions there exist a problem of irregularity of students which affects the overall academic performance of students. Currently, in some institutions the attendance is taking by calling in registers which is very time consuming and tedious. So, in this paper we are present the RFID and GSM based attendance monitoring system. The main goal of this project is to automate the process of attendance of the students, using active RFID tags. Each student is assigned with his/her specific RFID tag. The serial number of each tag is associated with each tag is associated with each student’s database. The active RFID readers are capable of detecting the tags within a predefine parameter. This project is to simplify attendance recorder system by using radio frequency identification (RFID) technology, within the RFID kit, the system will be developed by using C++ technology and database support.

METHODOLOGY:

We are going to show this large-scale automation on small scale with the help of breadboard circuit or Printed Circuit Board (PCB). On PCB we will attach components that are required to provide an example of an automation this component soldered on to PCB will function in such a way to illustrate RFID system. We use digital hardware circuit with RF reader.

* RFID Tag:

RFID tag is a small object that can be attached to product. It has antennas that help to transmit radio signal and frequencies to and from transceivers. There is two type of RFID passive and active. Active RFID depends on an internal power supply continuously to run the tag and its radio frequency. It allows low level signal to be received by the tag.

* RFID Reader:

RFID reader has antenna which produce radio waves the tag responds by sending back its data. The thing which can affect is the distance at which tags can be read. And the where we are placed the tag on the object is have impact on RFID system read range.

In this student tracking system, we focus on two main things. The first aim will be to build reliable system to access student data. And the second is to monitor students’ attendance percentages in each class.

* **Design of an IOT System based on Face Recognition Technology using ESP32-CAM**

This Paper was published on August 2022 by IJCSNS . In this paper, we will present the realization of a facial recognition system using the ESP32-CAM board controlled by

an Arduino board. The goal is to monitor a remote location in

real time via a camera that is integrated into the ESP32 IOT

board. The acquired images will be recorded on a memory card

and at the same time transmitted to a pc (a web server). The

development of this remote monitoring system is to create an

alternative between security, reception, and transmission of

information to act accordingly.The simulation results of our

proposed application of the facial recognition domain are very

efficient and satisfying in real time.