**ABSTRACT**

Student’s safety is one thing which we can surely not compromise upon. Their journey with schools starts right when they board the school bus. Schools have to ensure that the journey is safe and sound. They must have a full-proof system which tracks the movement of students when they start the journey till they reach back home safe. With the help of **RFID and GPS tracking system for schools**, we provide real-time student tracking system (RTLS) to ensure students safety.

Every year lots of if not thousands of our cares ones as well as youngsters unnecessarily go missing, meet with evil are concerned in misfortune or sadly, are lost forever. If solely we tend to have the technology to prevent or a minimum of greatly cut back this happening.

**INTRODUCTION**

One of the best parts of our school bus tracking software is the real-time or active notification facility. At a time when most parents would be busy with their jobs, the active notification feature keeps them updated about the various happenings in their childs school life. When it comes to school bus tracking, real-time notifications provide an additional layer of safety and convenience.

The notification can be send to parents in morning and evening

10 minutes before the bus arrives at the designated stop

Once the child boards the school bus or if the child doesnt board

In case the bus stops for an unusually long time at any point

If the bus stops at a non-designated bus stop

When the bus crosses the speed limit

Once the child alight the school bus

**SYSTEM ANALYSIS**

**Existing System**

**Indoor positioning system:**

- using device's Wi-Fi signal strength to locate the object within 100cms.

-a normal mobile with Wi-Fi feature can be used.

-the signal strength detected is used to calculate the distance from Wi-Fi access point.

**Wi-Fi-networking chip:**

-The chip can be used with gps for internal measurement.

-The future connections of device to new access points is automatically detected.

**Near field of transmitter:**

-This doesn’t use signal strength of connected device.

-It also doesn’t use the time taken by data to be sent or received.

-It is based on the fact that at frequencies of 1 MHz, the receiver operates in the near field of transmitter.

-The multiple paths to locate is avoided and the direct path is achieved.

-it is a function of the distance from thevtransmittinf antenna.

**Radio wave burst:**

-Can be combined with any of the above 3.

-It is used to locate devices within 4cm range.

-The main advantage is that it is not affected by the surface reflection or absorption of signals.

-It can be done by altering the radio frequency of the object for a short span of time, to emit a sudden erratic increase in frequency, lasting for a few milliseconds.

-This change and its location can be determined by any station.

**Proposed System**

* Individual bus tracking and its stoppage and running time.

In case of emergency,

* Determining alternative routes .
* Traffic analysis possible if location of near by vehicles and device connectivity data is available.
* Information and location notification to hospitals, mechanics, other bus drivers and college.
* Creating a dashboard for guest and frequent users to keep track of their data. Travel history log and Route playback.
* Can be integrated with vehicle management systems, student portfolio etc.

of revisiting the exercise again.

**Feasibility Study**

Feasibility study is a high level capsule version of the entire process intended to answer a number of questions like: What is the problem? Is there any feasible solution to the given problem? Is the problem even worth solving? Feasibility study is conducted once the problem clearly understood. Feasibility study is necessary to determine that the proposed system is feasible b considering the technical, operational, and economical factors. By having a detailed feasibility study the management will have a clear-cut view of the proposed system.

The following feasibilities are considered for the project in order to ensure that the project is variable and it does not have any major obstructions. Feasibility study encompasses the following things

* Technical Feasibility
* Economic Feasibility
* Operational feasibility

In this phase, we study the feasibility of all proposed systems, and pick the best feasible solution for the problem. The feasibility is studied based on three main factors as follows.

**Economical Feasibility**

In this step, we verify which proposal is more economical. We compare the financial benefits of the new system with the investment. The new system is economically feasible only when the financial benefits are more than the investments and expenditure. Economical Feasibility determines whether the project goal can be within the resource limits allocated to it or not. It must determine whether it is worthwhile to process with the entire project or whether the benefits obtained from the new system are not worth the costs. In this issue, we should consider,

* The cost to conduct a full system investigation.
* The cost of hardware and software for the class of application being considered.
* The development tool.
* The cost of maintenance etc.,

Our project is economically feasible because the cost of development is very minimal when compared to financial benefits of the application.

**Operation Feasibility**

In this step, we verify different operational factors of the proposed systems like man-power, time etc., whichever solution uses less operational resources, is the best operationally feasible solution.

* The methods of processing and presentation are completely accepted by the clients since they can meet all user requirements.
* The clients have been involved in the planning and development of the system.
* The proposed system will not cause any problem under any circumstances.

Our project is operationally feasible because the personnel requirements are satisfied. We are a team of 4 members and we worked on this project for three working months.

**Technical Requirements**

In this step, we verify whether the proposed systems are technically feasible or not, i.e., all the technologies required to develop the system are available readily or not.

Technical Feasibility determines whether the organization has the technology and skills necessary to carry out the project and how this should be obtained. The system can be feasible because of the following grounds.

* All necessary technology exists to develop the system.
* This system is too flexible and it can be expanded further.
* This system can give guarantees of accuracy, ease of use, reliability and the data security.
* This system can give instant response to inquire.

Our project is technically feasible because, all the technology needed for our project is readily available.

**SYSTEM SPECIFICATION**

The system specification provides detailed information about different phases in the project. The phases in the system describes three modules of the system. They are User Interface, User Statistics and Exercise repository system.

The phases also describe the detailed design of the backend which is designed using MySQL.

**Front End**

The Front End is designed using Python and JavaScript. All the tools and languages that are used to develop the frontend are open Source Languages.

**Python** is a general purpose, high-level Programming language. Its syntax allows programmers to express concepts in fewer lines of code.

**JavaScript** (JS) is a dynamic computer programming language. It is most commonly used as part of web browsers, whose implementation allow client-side scripts to interact with the user, control the browser, communicate asynchronously and alter the document content that is displayed.

**Back End**

The backend process of the SQL describes the storing and retrieving of data information which is processed from front end.

MongoDB is one of several database types to arise in the mid-2000s under the **NoSQL** banner. Instead of using tables and rows as in relational databases, MongoDB is built on an architecture of collections and documents.

**Requirement Analysis**

The requirement analysis includes the hardware and software requirement for the project.

**Hardware Requirements**

The following hardware requirements are needed in order to simulate the results.

Processor type : Intel Core i3, i5, i7 CPU

RAM : 4GB

Hard Disk : 400 GB

Monitor : 16" Color Monitor

Keyboard : Standard 110 keys

**Software Requirements:**

Front end : JavaScript, Python.

Back end : SQL,Mongo

Operating System : Windows, Linux