



# CASE STUDY

## PARENT APP

## Domain

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A software development company that focuses on making school transport system more safe, productive and parent-friendly. By providing access to customizable GPS enhanced tracking system, it allows school authorities and parents to track the entire fleet in real-time with the help of mobile and web solutions.

Why Mobile App Development? Mobility has been changing technology and apps are becoming an essential part of businesses. Smart phones provide advantages such as personalization and interactivity any time, anywhere. Creating a safety transportation app can help TrackSchoolBus reach out to customers effectively.

## Objective

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To create an app that allows parents/authorities to track the location of a school bus in real-time using GPS trackers and RFID tags. The implementation had to work with the existing technology frameworks and meet the client needs to provide a safe transportation app.

## Challenge

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While formulating the application, back-end system and infrastructure showed to play the major role in the final offered product. Specifically, the following areas were identified as potential back-end challenges:

- Developing the app in multiple platforms i.e. iOS and Android
- Tracking the location of the bus on real-time
- Allow to set up location alerts
- Location alert on pick and drop location according to the users choice
- Users get notified about the unscheduled bus stops and over-speeding
- Can get student details like attendance, leave details, can apply for leave, get bus fare details, announcements as real-time notifications

## Strategy

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Get a clear idea about the client requirement, Set a course for the design and development with clear milestones, and implement each section after constant client interactions. This agile model of getting feedback and make changes during the development is expected to help produce a well rounded mobile app with fewer bugs and shortcomings.

## What We Did ?

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Redbytes has followed tailored methodologies and a focused approach for creating the wire frames, design, development, testing and the maintenance part of this application.

Parents App allows parents and school authorities to track their child in real-time with the help of global positioning system(GPS) and RFID tags. This is one of the best designed and most accurate and reliable app to ensure the safety of the students travelling in a school bus.

To use the app, parents first need to register using parent details, student details, pick up and drop details of the student.

The parents and school authorities receive notifications either as SMS/push notifications about the school bus locations. The first notification will be received 10 minutes prior to the bus arriving at the scheduled bus stop. The next notification comes once the child swipes the RFID tag in the card readers installed in the bus just after the student boards the bus.

Users can track the route of the school bus on a map within the application. When the student gets out the bus and swipes their RFID cards, next notification is received. The same method is repeated in the evening when the students travel back home.

## Design

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We focused on a design that is simple and can provide greater customer experience and have included parameters that are necessary for developing a successful app with perfects functionality, design concepts within given time line and budget. The user interface is the part of the design which combines various spheres of activity, like logics, art, framework and analysis.

## Application Part:

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Parent app is a cross-platform app that works with both Android and iOS which offer a way of saving resources in the aim of covering different platforms. Use of cross-platform approach has provided developers the flexibility to create an app that runs across different platforms based on the ideal principle of 'write once run everywhere' i.e. be it Android or iOS, the followed procedures are almost the same.

### In iOS:

Here Objective C, an object-oriented language used in iOS apps. Xcode is used as the Integrated development environment (IDE) which includes all features one needs to design, develop and debug an app.

### In Android:

Here, the Android development environment is set up using the Android Studio which is used as IDE. Java is used as the programming language which is an object-oriented smart solution for robust utilities, and also allows our developers to be more efficient, effective and innovative in their ideas.

The steps of development:

1. A new project is created
2. A bundle id and name of the app is provided in settings
3. To upload app to the App store certificates are created
4. Designing the app where UI design plays a crucial role
5. Once the app is developed, it is sent to the QA team for testing

## Web Part

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Web part runs directly with the server and uses PHP as the scripting language which can be embedded into HTML code or can be combined with the web content management system, web template systems and web frameworks. And Yii2 is used as the open source, object oriented MVC PHP web app server in this project.

**Node.js** is the JavaScript used for developing the dashboard of the app. The non-blocking I/O model of Node.js makes it lightweight, efficient and scalable.

In web part, first the parent or the school authority need to register their details which is verified by the Transport Manager. Once verification is done, the user can add the student details such as school and class details, the location of pick up and drop etc. Further, school bus trips are allocated by the transport manager. Then, the driver is assigned and the user can track the bus details and location using the Parent app in the mobile phone.

## Testing:

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Quality is given importance in every step of app development where we make sure that every aspect of the app is working according to the client needs. Redbytes follows standard testing methodologies to test the app at every stage of the development and also carry out comprehensive automated testing mechanisms like unit testing, integration testing and regression testing.

## Debugging

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This is carried out by the development team, after analysing the test reports. Our developers try to find the cause of the defect, then tries to modify that portion and later rechecks the code. After fixing the bug, developers send the software back to testers. And finally, app gets ready for launch.

## Investment

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This project was a combined effort of our experienced and creative team which included a project head, designers, Android and iOS developers and testers. It took almost 4 months for us to complete the entire Parent App project.

## Achievement

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The web and mobile applications of the Parent App developed by Redbytes was a success and received good response from the client. The client was happy in achieving their motive of developing a simple, user-friendly app for their customers for providing a customizable GPS enhanced tracking system in school buses.

