Department of Computer Science & Engineering
The University of Texas at Arlington

System Requirements Specification
CSE 4316: Senior Design I
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Team Codebenders
School Pickup and Drop off App

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Revision History

Revision	Date	Author(s)	Description
0.1	03.12.2021	AA	document creation
0.2	03.15.2021	UB, SB, PB, MN	complete draft
0.3	03.16.2021	AA, NK, MN	editing and correction
1.0	04.1.2021	AA, NK, MN, UB, SB, PB	Proof read, finalization
1.1	04.18.2021	AA, NK	Proof read, finalization
2.0	05.3.2021	UB	Revised version 1 to create version 2
2.1	05.3.2021	UB,NK,SB,NM	Revised version 1 to create version 2
3.0	08.11.2021	SB, UB, NK, NM, AA, PB	Final Version

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1 Product Concept

This section describes the purpose, use and intended user audience for the School Pickup/Drop Off App product. School Pickup/Drop Off App is an application for schools and student's parents. Users of School Pickup/Drop Off App will be able to use this application for picking up and dropping off students.

1.1 Purpose and Use

The purpose of the application is to reduce the overall pickup and drop off time of students. This will be done providing the school information on which student’s parent has entered the premises and dismiss them in a designated parking spot.

1.2 Intended Audience

School Pickup/Drop Off App is designed for schools and will be purchased by schools. This App will be used by schools and student's parents/guardians.

2 Product Description

The application will have web and mobile interface where web interface will be designed for school administration and the mobile app will have parents and school staff and faculty interface. On the web interfaces school will have administrative rights such as adding and verifying parents information. Whereas in the mobile interfaces parents can login.

2.1 Features & Functions

The product will have web and mobile interface. We will be using GPS to track Geo location of the user to notify school when they arrive in the pick up and drop off spots.

2.2 External Inputs & Outputs

Since this is Geo tracking application the input will be the location coordinate of the parents who will be picking up or dropping off their children. The application will send those information to the school.

2.3 Product Interfaces

Our plan is to have:

- School Faculty/Staff Interfaces: In this interface school faculty/staff will be able to see whose student's parents has arrived into the designated parking spot. They can select the student who has already been picked up / dropped off.
- Parents Interfaces: In this interface parents can choose to send location when they are within 3 km radius of school. The application will show the pickup spot no when parents with 500 m radius of school.
- School Admin Interfaces: In this interface school administrator can add school faculty/staff and parents and edit their information as needed.

3 Customer Requirements

Following are the customer requirements that our system shall meet.

3.1 Registration/Login

3.1.1 Description

The system shall allow the registration/login of parents and teachers/staff.

3.1.2 Source

The source of requirement is our sponsor Dr. McMurrough.

3.1.3 Constraints

School needs to maintain the list of students along with their parents information.

3.1.4 Standards

N/A

3.1.5 Priority

High

3.2 Geo-location Tracking

3.2.1 Description

The application shall track the real time Geo-location of parents.

3.2.2 Source

The source of requirement is our sponsor Dr. McMurrough.

3.2.3 Constraints

Consent from the parents.

3.2.4 Standards

N/A

3.2.5 Priority

High

3.3 Notification

3.3.1 Description

The application shall notify to parents about the designated pickup and drop off spot.

3.3.2 Source

The source of requirement is our sponsor Dr. McMurrough.

3.3.3 Constraints

N/A

3.3.4 Standards

N/A

3.3.5 Priority

High

4 Packaging Requirements

As this is software project and does not have any hardware component, the end product will be made available online in the web as well as available for download for mobile devices from app and google store.

4.1 Live Web Interface

4.1.1 Description

A live Web Interface will be made available to carry out administrative work such as adding, editing users and user roles.

4.1.2 Source

N/A

4.1.3 Constraints

N/A

4.1.4 Standards

N/A

4.1.5 Priority

High

4.2 Mobile Application Download

4.2.1 Description

The application will be available for download for iOS and Android mobile users in their respective stores.

4.2.2 Source

N/A

4.2.3 Constraints

N/A

4.2.4 Standards

N/A

4.2.5 Priority

High

5 Performance Requirements

The application must show the precise and exact location of the parents so that the faculty member can handover their children to the right spot.

5.1 Precise Geo location tracking

5.1.1 Description

The application should be able to locate the position of the parents precisely.

5.1.2 Source

Team

5.1.3 Constraints

There might be bad and weak signal which could impact the geo location tracking

5.1.4 Standards

N/A

5.1.5 Priority

High

5.2 Error handling

5.2.1 Description

The application shall be able to handle the minor errors/problems that the user encounters while using the application.

5.2.2 Source

Team

5.2.3 Constraints

The application might crash due to bug in application.

5.2.4 Standards

N/A

5.2.5 Priority

Medium

6 Safety Requirements

Since, this is the application is used by parents and it might be vulnerable where hackers might gain access tho those data illegally and used it against the user.

6.1 Protect Personal Data

6.1.1 Description

The application shall be able to protect the personal information of the parent.

6.1.2 Source

N/A

6.1.3 Constraints

N/A

6.1.4 Standards

N/A

6.1.5 Priority

High

7 Maintenance & Support Requirements

This section addresses features specific on the ongoing maintenance and support of School Pickup/Drop off after its publication in various platforms.

7.1 Provide maintenance and Support

7.1.1 Description

The team will provide maintenance and support to the application as well as fix bugs and solve other technical issues that may arise during development, testing or deployment phase.

7.1.2 Source

- Software Testing
- Feedback from School Administration, Staff/Faculty and Parents.

7.1.3 Constraints

N/A

7.1.4 Standards

N/A

7.1.5 Priority

Medium

7.2 Add and Update Features

7.2.1 Description

The team will add and update features as requested by the school and parents.

7.2.2 Source

- Feedback from School Administration, Staff/Faculty and Parents.

7.2.3 Constraints

N/A

7.2.4 Standards

N/A

7.2.5 Priority

Medium

8 Other Requirements

8.1 Publish the Application

8.1.1 Description

Publish the mobile application in App Store and Google Play to allow users to download and install it into their mobile devices.

8.1.2 Source

N/A

8.1.3 Constraints

N/A

8.1.4 Standards

N/A

8.1.5 Priority

Medium

8.2 Live Web Interface

8.2.1 Description

Get a domain name and host the application in a live server.

8.2.2 Source

N/A

8.2.3 Constraints

N/A

8.2.4 Standards

N/A

8.2.5 Priority

Low

9 Future Items

Due to constraints of time, skills and budget the following item may be considered in future versions.

9.1 SMS

9.1.1 Description

The project can implement SMS system as an additional feature which can be used by parents who do not wish to install the application on their phones.

9.1.2 Source

N/A

9.1.3 Constraints

- Time: As the project has a limited time, team may not have enough time to build, integrate and test SMS system.
- Skills: Team lacks the experience and skill-set on implementing SMS system.

9.1.4 Standards

N/A

9.1.5 Priority

Low Priority

9.2 Real-Time License Plate Recognition

9.2.1 Description

The project might implement Real-Time License Plate Recognition which notify the school officials when patents vehicle approaches near the designated Pick Up/ Drop Off areas.

9.2.2 Source

N/A

9.2.3 Constraints

- Time: As the project has a limited time, team may not have enough time to build, integrate and test Real-Time License Plate Recognition.
- Skills: Team lacks the experience and skill-set on Computer Vision.
- Budget: More budget will be required to purchase necessary equipment's such as camera and raspberry pi.

9.2.4 Standards

N/A

9.2.5 Priority

Low Priority

References