DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
THE UNIVERSITY OF TEXAS AT ARLINGTON

PROJECT CHARTER
CSE 4317: SENIOR DESIGN II
SPRING 2021 - SUMMER 2021

TEAM CODEBENDERS
SCHOOL PICKUP AND DROP OFF APP

AVINASH ARYAL
MANIZHA NOORI
NAVEEN KSHETRI
PRABHAT BACHAGAIN
SANTOSH BHANDARI
UJJWAL BAJAGAIN

REVISION HISTORY

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0.2	2/25/2021	AA, UB	Initial Name and Date Edits
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2.0	5/03/2021	SB,PB	Review for version 2
3.0	08/03/2021	AA,MN,SB,PB	Final Version

CONTENTS

LIST OF FIGURES

1 PROBLEM STATEMENT

During the school pick-up time, the traffic around the school becomes congested and sometimes would even block the whole neighborhood. It dramatically increases the safety risk of pedestrians and vehicles. At the time of Covid, students cannot stay in a group at a designated area and should be dismissed one by one when their parents come to pick them up. It requires much more coordination among teachers. Also, teachers should be on a constant lookout to check if students' parents are on the school premises. We hope to automated the process by knowing whose student's parent has entered the premises and dismissed them in a designated picking spot. It will reduce the overall pickup time and decrease the safety risk of pedestrians and vehicles.

2 METHODOLOGY

Our team has decided to build an android and ios application to address the problem. The application will use the geo-tracking of the parents' location and notify teachers and staff when they are near school premises/pickup location so that they can dismiss students.

3 VALUE PROPOSITION

The stakeholders in our project are students, parents, teachers, and schools. The project tries to decrease the student pick-up time and reduce the traffic congestion during peak hours. Not only will it help to reduce traffic but improve the safety of pedestrians and vehicles.

4 DEVELOPMENT MILESTONES

Provide a list of milestones and completion dates in the following format:

- Project Charter first draft - March 1, 2021

- System Requirements Specification v1 - March 22,2021

- Architectural Design Specification v1 - April 12, 2021

- Charter version 2 - May 4, 2021

- System Requirements Specification v2 - May 4, 2021

- Architectural Design Specification v2 - May 4, 2021

- Finish of User Interface (Admin side) - June 2021

- Finish Location Tracking (GPS) - June 2021

- Finish Interface (Mobile)- July, 2021

- Testing - August 2021

- Final Project Demonstration - August 2021

5 BACKGROUND

The traditional method of dismissing students and picking up students has outdated as it is very inefficient and unsafe. It is a major problem, especially in elementary school. Teachers/staff have to be on a constant lookout to check if a student's parent has come to a pickup location. It requires much more coordination between school staff. The Covid-19 pandemic has made it even more difficult. Since students cannot stay in a group in designated areas they have to be dismissed one by one.

This traditional method is time-consuming. Parents end up waiting for a long time and traffic gets crazy around the school pickup zone. Sometimes, the traffic becomes so congested that it would block the neighborhood. So If we come up with an idea and build a system to solve the traffic and long waiting time issue in school pickup time it carries huge potential in the market as there are many schools and parents that are seeking help on these issues.

The customer/sponsor wants to work with us because they want to mitigate the problem caused during school pick-up. We are looking for a partner school to collaborate with us to use this system in the real world. Also, we have professor Mcmurrough who is guiding us with ideas to solve the issues.

6 RELATED WORK

During our research we were able to find multiple software product which were commercially available and were providing services for school pick up and drop management software.

Here is list of some similar software products

- Pikmykid [3]

- Child Care App Management Platform by Procare Solutions [4]

- School Guardian [5]

- Fetchkids [2]

- CloudBB [1]

According to the description of most of these software, most of them used mobile application and had to check-in.Only two of the software products used Geo-location tracking features and most of them depend on internet connection. We could not find any feature that allows check-in's over SMS in case the internet connection was not working or if the parent didn't wish to install the app.

To our knowledge non of the currently existing applications support SMS features in absence of Internet or smart phone. This would make our project the first software to support SMS alerts for student school pickup and drop off.

7 SYSTEM OVERVIEW

The primary goal was to solve the long waiting time of parents during picking up their children from school in the peak hour. As the process is to notify school official about parent incoming to pick up their children,our main goal was to come up with the solution that make process fast and smooth the traffic. The problem was analyzed by our team and came off with solution to develop an App that uses Geo-location tracking using GPS. There will be use of google map API for tracking purposes.There will be multiple pickup Zones available for parents to pick up their child. The system will locate the parents car and school officials can verify identity through our app and drop off children to the car. This will reduce time for parents to go to the school and ask official for their children which will significantly impact on the overall procedure if we see the numbers of students.

In this system there will be school administration that manage account for the parents information.The administration will have access to web portal which will have higher access level, similar to

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that of as admins. Parents who are interested in using this app need to register to the school administration. For the safety purposes only the registered person with registered vehicle can express pickup their children from the school in desired pickup area in desired time.There will be both Android and IOS Application for both parents and school administration to use which will be user friendly.
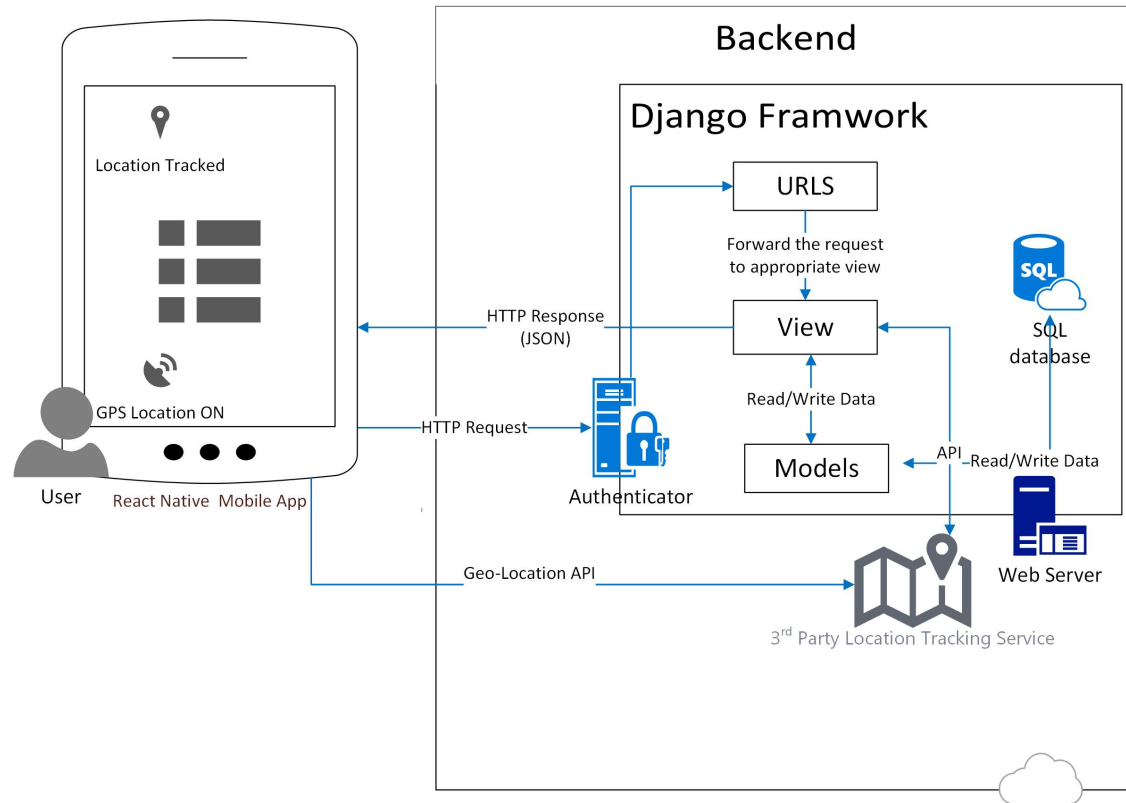

Figure 1: System Design

8   ROLES & RESPONSIBILITIES

The stake holders in this project are:

- **Internal Stakeholders**: School Pickup App Development Team

- **External Stakeholders**: Parties affected by our Project

  - Potential schools and their staff using our product
  - Potential students and parents of the student that study in those schools

We plan to maintain the same scrum master i.e. our group leader throughout the project and he will be the point of contact from our sponsor.

9   COST PROPOSAL

For this project the Total Budget is $800 and will be provided by University of Texas at Arlington's Computer Science and Engineering Department.

9.1   PRELIMINARY BUDGET

Below is our Preliminary Budget estimate:

Member	Role
Professor Christopher McMurrough	Project Sponsor
GM: Ujjwal Bajagain	Group leader and Back end Developer
GM: Avinash Aryal	Front end and Back end Developer
GM: Manizha Noori	Front End Developer
GM: Naveen Kshetri	Front End Developer
GM: Prabhat Bachagain	Front End Developer
GM: Santosh Bhandari	Front End Developer

- * **GM: Group Member**.
- * **TBD: To Be Decided**.

Table 1: Internal Stakeholders

Item	Cost
Cloud Hosting Platform	$200

Table 2: Overview of Preliminary Budget

9.2 CURRENT & PENDING SUPPORT

As of now, this project is supported by University of Texas at Arlington's Computer Science and Engineering Department with a total budget of $800.

10 FACILITIES & EQUIPMENT

No Facilities or Equipment will be required for this project.

11 ASSUMPTIONS

The following list contains critical assumptions related to the implementation and testing of the project.

- The customer's device will have internet connection and GPS signal.
- The customer's device will meet the minimum hardware requirement for the installation.
- The customer will running a supported version of iOS or Android and will be able to install the mobile application their device.
- The customer will allow location tracking feature in the application.
- School will maintain and update a reliable list of parents and student information.

12 CONSTRAINTS

The following list contains key constraints related to the implementation and testing of the project.

- Final prototype demonstration must be completed by Aug, 2021
- Total development costs must not exceed $800
- Finding a real world costumer to test the project.
- Customer dissatisfaction
- All data obtained from customer site must be reviewed and approved for release by the Information Security Office prior to being copied to any internet connected storage medium

13 RISKS

The following high-level risk census contains identified project risks with the highest exposure. Mitigation strategies will be discussed in future planning sessions.

Risk description	Probability	Loss (days)	Exposure (days)
Availability of Team members due to class and work schedule	0.30	32	9.6
Finding a real world client to test the system	0.50	15	7.5
Integration of Project Feature within the give time frame	0.30	15	4.5
Delays due to team member getting COVID or other uncontrollable situations	0.16	14	2.24
Technical issue or downtime of 3rd party API and systems	0.1	10	1

Table 3: Overview of highest exposure project risks

14 DOCUMENTATION & REPORTING

14.1 MAJOR DOCUMENTATION DELIVERABLES

14.1.1 PROJECT CHARTER

Project Charter will be maintained and updated for each individual sprints if any changes are made to the existing Project Charter.

Project Charter initial version delivery date: March 1, 2021.

Project Charter final version delivery date: May 4, 2021.

14.1.2 SYSTEM REQUIREMENTS SPECIFICATION

System requirements will be maintained and updated after a new specification of feature is requested by the Sponsor.

System Requirements Specification initial version delivery date: March 22, 2021

System Requirements Specification final version delivery date: May 4, 2021

14.1.3 ARCHITECTURAL DESIGN SPECIFICATION

Architectural Design Specification will be maintained and updated if any changes are made in the initial Architectural Design.

Architectural Design Specification initial version delivery date: April 12, 2021

Architectural Design Specification final version delivery date: May 4, 2021

14.1.4 DETAILED DESIGN SPECIFICATION

Detailed Design Specification will be maintained and updated only after getting the design changes approved by the Client/Sponsor.

14.2 RECURRING SPRINT ITEMS

14.2.1 PRODUCT BACKLOG

Item from SRS will be added to product backlog according to the priority and the group vote. The product backlog will be maintained and shared using the projects GitHub's Project Section.

https://github.com/ujjwalbgn/SchoolPickUp/projects

14.2.2 SPRINT PLANNING

The Sprint plan will be planned by group members. 4 Sprint Plan for Senior design 1

How will each sprint plan be planned? How many sprints will there be (you need to look at the schedules for this course and previous Senior Design II courses during the appropriate semesters to figure this out).
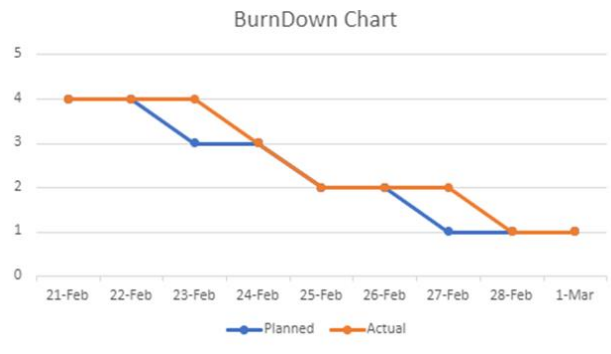
Figure 2: Sprint burn down chart

14.2.3 Sprint Goal

The Sprint Goals will be decided by the group members under the suggestions of the Sponsor.

14.2.4 Sprint Backlog

The group will decide which item will be added the product backlog. The product backlog will be maintained and shared using the projects GitHub's Project Section.

https://github.com/ujjwalbgn/SchoolPickUp/projects

14.2.5 Task Breakdown

Product owner will assign the individual task in agreement with team members. Team members will document their time spent in a shared excel file.

14.2.6 Sprint Burn Down Charts

One of the team member will be assigned the task to generate the burn down charts for each sprint. The time spent by each individual can be obtained from the shared excel file.

14.2.7 Sprint Retrospective

The team will conduct Sprint Retrospective after each Sprint is completed. The objective of the Sprint Retrospective is to go over the challenges and product backlog of the last sprint and plan on how to overcome the challenges and difficulties and make more progress in the future sprints.

14.2.8 Individual Status Reports

The status reported will be Completed, Ongoing, and Incomplete. An individual will be assigned a task for him/her to complete through teams plan and task. An individual should report a status at least once a week.

14.2.9 Engineering Notebooks

Engineering notebook with be updated in each Sprint. Our team doesn't have requirement for minimum pages, but we do require the team members to note down the important point discussed in the meetings and their individual work. Since all of the work is online, our team will not be able to get the Engineering notebook signed but our team will be updating them online to our group chat to maintain accountability.

14.3 Closeout Materials

14.3.1 System Prototype

To be Decided

14.3.2 PROJECT POSTER

The team will create Project Poster to show how application solve real life problem and what are features that we use to solve those issue at end of the project.

14.3.3 WEB PAGE

During the development phase the website will include milestones and objective along with current project status. This information will be update at the of every Sprint. After the completion of the project, the website will also contain the user manual.

14.3.4 DEMO VIDEO

Simple demo video will be presented to show primary functionality of the application.

14.3.5 SOURCE CODE

The entire group in responsible for maintaining the code base. Git will be used for version control.

14.3.6 SOURCE CODE DOCUMENTATION

The entire group in responsible for maintaining the code base. Git will be used for version control.To be Decided: Provide source code to customer, License Terms.

14.3.7 INSTALLATION SCRIPTS

No installation will be provided as the entire application will be hosted in web and will be available to download in app and play stores.

14.3.8 USER MANUAL

Customer will be provided a detailed digital user manual along with a short video to cover certain aspect of the software.

REFERENCES

[1] Cloudbb. Website. https://www.cloudbb.com/.

[2] Fetchkids. Website. https://fetchkids.com/.

[3] Pikmykid. Website. https://www.pikmykid.com/.

[4] Procaresoftware. Website. https://www.procaresoftware.com/child-care-app/.

[5] Schoolguardian. Website. https://www.schoolguardian.com, February 2021.