**SCHOOL BUS TRACKING AND ATTENDANCE CHECKING**

Traceability Record

**By**

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Chapter One | Introduction

1.1 Purpose

“School Bus Tracking and Attendance Checking” is an Android application that uses the location service of mobile phone to track the school bus and use the built-in camera to scan the QR code for checking the student attendance. The parent can track the school bus, can see their child attendance record, can get notification when their child enter or get off the bus, and can send the alert sound to alert the driver when they drive the school over the speed limit. For reduce the parent worrying about their children.

This project plan is the document for planning, scheduling activities and evaluating overall of the project so that the project will complete as successfully as possible in spite of all risks. The project plan is use for track the progress and monitor whether the project follows the plan.

1.2 Project Scope

“School Bus Tracking and Attendance Checking” is a mobile application which uses Android OS. This application can help to improve the school bus system and reduce the parent worrying about their children. The parent can track the school bus position, can see their child attendance record, and get notification message when their child enter or get off the school bus. In addition, the driver can check the student attendance by scan the QR code and can get the alert sound when the driver drive the bus over the speed limit.

1.3 Dependency

The purpose of the “School Bus Tracking and Attendance Checking” project plan is to guide the project team members during the development of the project.

Chapter Two | Traceability Record Table

2.1 Table : URS – SRS – UC – AD – UI

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **URS** | **Description** | **SRS** | **UC** | **AD** | **UI** |
| 1 | URS-01 | Unregister users have to register for using application. | SRS-01, SRS-02, SRS-03, SRS-04,  SRS-14, SRS-25, SRS-31, SRS-32,  SRS-33, SRS-44,  SRS-47, SRS-48,  SRS-49, SRS-50,  SRS-51, SRS-53,  SRS-54, SRS-55,  SRS-57, SRS-58,  SRS-59,SRS-63 | UC-02 | AD-01 | UI-01 |
| 2 | URS-02 | Unregister user (Parents), School bus driver. | SRS-01, SRS-03,  SRS-04, SRS-14,  SRS-25, SRS-31,  SRS-32, SRS-33,  SRS-44, SRS-47, SRS-48, SRS-49,  SRS-50, SRS-51,  SRS-53, SRS-54,  SRS-60, SRS-61,  SRS-62 | UC-02 | AD-02 | UI-02 |
| 3 | URS-03 | School bus driver can register the children to the application. | SRS-01, SRS-02,  SRS-03, SRS-04,  SRS-14, SRS-25,  SRS-31, SRS-32,  SRS-33, SRS-44,  SRS-47, SRS-48,  SRS-49, SRS-50,  SRS-51, SRS-52,  SRS-53, SRS-54,  SRS-60, SRS-62 | UC-02 | AD-03 | UI-03 |
| 4 | URS-04 | School bus driver can register the children to the application. | SRS-06, SRS-07,SRS-08,  SRS-10, SRS-26,  SRS-64, SRS-65 | UC-02 | AD-04 | UI-04 |
| 5 | URS-05 | Parents can logout from the application. | SRS-09,SRS-26 | UC-02 | AD-05 | UI-05 |
| 6 | URS-06 | Children can login to the application. | SRS-06, SRS-07,  SRS-08, SRS-10,  SRS-27, SRS-64,  SRS-65 | UC-02 | AD-04 | UI-04 |
| 7 | URS-07 | Children can logout from the application. | SRS-09,  SRS-27 | UC-02 | AD-05 | UI-05 |
| 8 | URS-08 | Registered(School bus driver) user can login to the application. | SRS-06, SRS-10,  SRS-28, SRS-64,  SRS-65 | UC-02 | AD-04 | UI-04 |
| 9 | URS-09 | Registered (School bus driver) user can logout from the application. | SRS-09,  SRS-28 | UC-02 | AD-05 | UI-05 |
| 10 | URS-10 | Parents can cancel the schedule. | SRS-21, SRS-25,  SRS-34, SRS-35,  SRS-36 | UC-04 | AD-10 | UI-10 |
| 11 | URS-11 | Parents can view their own route. | SRS-11, SRS-12,  SRS-13, SRS-26,  SRS-37 | UC-05 | AD-12 | UI-12 |
| 12 | URS-12 | Children can view their own route. | SRS-11, SRS-12,  SRS-13, SRS-27,  SRS-37 | UC-05 | AD-12 | UI-12 |
| 13 | URS-13 | School bus driver can view their own route. | SRS-11, SRS-12,  SRS-13, SRS-28,  SRS-37 | UC-05 | AD-12 | UI-12 |
| 14 | URS-14 | Parents can checking their children's attendance. | SRS-17, SRS-26,  SRS-37, SRS-38 | UC-03 | AD-07 | UI-07 |
| 15 | URS-15 | Children can receive the message when the bus are nearby. | SRS-17, SRS-22,  SRS-41, SRS-45,  SRS-46 | UC-04 | AD-08 | UI-08 |
| 16 | URS-16 | School bus driver can scan QR code for children attendance. | SRS-01, SRS-15,  SRS-39, SRS-40,  SRS-66 | UC-03 | AD-06 | UI-06 |
| 17 | URS-17 | School bus driver can receive alert message from the system when they drive over the speed limit. | SRS-24, SRS-28,  SRS-45, SRS-46 | UC-06 | AD-13 | UI-13 |
| 18 | URS-18 | Parents can receive the message when their children arrive the school or home. | SRS-20, SRS-45,  SRS-46 | UC-04 | AD-09 | UI-09 |
| 19 | URS-19 | School bus driver can send an extra case message. | SRS-23, SRS-28,  SRS-34, SRS-35,  SRS-36, SRS-37,  SRS-40, SRS-43,  SRS-45, SRS-46 | UC-04 | AD-11 | UI-11 |
| 20 | URS-20 | School bus driver can turn on the application. | SRS-01, SRS-28,  SRS-29 | UC-06 | AD-14 | UI-14 |
| 21 | URS-21 | School bus driver can turn off the application. | SRS-01, SRS-28,  SRS-30 | UC-06 | AD-15 | UI-15 |

2.2 User Requirement Specification and System Requirement Specification

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **SRS** | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| **U**  **R**  **S** | 1 | X | X | X | X |  |  |  |  |  |  |  |  |  | X |  |  |  |  |
| 2 | X | X | X | X |  |  |  |  |  |  |  |  |  | X |  |  |  |  |
| 3 | X | X | X | X |  |  |  |  |  |  |  |  |  | X |  |  |  |  |
| 4 |  |  |  |  |  | X | X | X |  | X |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  | X | X | X |  | X |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  | X | X | X |  | X |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 |  |  |  |  |  |  |  |  |  |  | X | X | X |  |  |  |  |  |
| 12 |  |  |  |  |  |  |  |  |  |  | X | X | X |  |  |  |  |  |
| 13 |  |  |  |  |  |  |  |  |  |  | X | X | X |  |  |  |  |  |
| 14 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |
| 15 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |
| 16 | X |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |
| 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21 | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **SRS** | | | | | | | | | | | | | | | | | |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| **U**  **R**  **S** | 1 |  |  |  |  |  |  | X |  |  |  |  |  | X | X | X |  |  |  |
| 2 |  |  |  |  |  |  | X |  |  |  |  |  | X | X | X |  |  |  |
| 3 |  |  |  |  |  |  | X |  |  |  |  |  | X | X | X |  |  |  |
| 4 |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| 10 | X |  |  |  |  |  | X |  |  |  |  |  |  |  |  | X | X | X |
| 11 |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| 12 |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |
| 13 |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| 14 |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| 15 |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 |  |  |  |  | X |  |  |  |  | X |  |  |  |  |  |  |  |  |
| 18 |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19 |  |  |  |  | X |  |  |  |  | X |  |  |  |  |  | X | X | X |
| 20 |  |  |  |  |  |  |  |  |  | X | X |  |  |  |  |  |  |  |
| 21 |  |  |  |  |  |  |  |  |  | X |  | X |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **SRS** | | | | | | | | | | | | | | | | | |
| 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 |
| **U**  **R**  **S** | 1 |  |  |  |  |  |  |  | X |  |  | X | X | X | X | X |  | X | X |
| 2 |  |  |  |  |  |  |  | X |  |  | X | X | X | X | X |  | X | X |
| 3 |  |  |  |  |  |  |  | X |  |  | X | X | X | X | X |  | X | X |
| 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12 | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13 | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14 | x | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 |  |  |  |  | x |  |  |  | X | X |  |  |  |  |  |  |  |  |
| 16 |  |  | x | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 |  |  |  |  |  |  |  |  | X | X |  |  |  |  |  |  |  |  |
| 18 |  |  |  |  |  |  |  |  | X | X |  |  |  |  |  |  |  |  |
| 19 | X |  |  | X |  |  | X |  | X | X |  |  |  |  |  |  |  |  |
| 20 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **SRS** | | | | | | | | | | | | |
| 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 |
| **U**  **R**  **S** | 1 | X |  | X | X | X |  |  |  | X |  |  |  | X |
| 2 |  |  |  |  |  | X | X | X |  |  |  |  | X |
| 3 |  |  |  |  |  | X |  | X |  |  |  |  | X |
| 4 |  |  |  |  |  |  |  |  |  | X | X |  | X |
| 5 |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 6 |  |  |  |  |  |  |  |  |  | X | X |  | X |
| 7 |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 8 |  |  |  |  |  |  |  |  |  | X | X |  | X |
| 9 |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 10 |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 11 |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 12 |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 13 |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 14 |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 15 |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 16 |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 17 |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 18 |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 19 |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 20 |  |  |  |  |  |  |  |  |  |  |  |  | X |
| 21 |  |  |  |  |  |  |  |  |  |  |  |  | X |

2.3 User Requirement Specification and Activity Diagram

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **Activity Diagram** | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| **U**  **R**  **S** | 1 | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  | x |  |  |  | X |  |  |  |  |  |  |  |
| 9 |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |
| 11 |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |
| 12 |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |
| 13 |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |
| 14 |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |
| 15 |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| 16 |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |
| 17 |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |
| 18 |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |
| 19 |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |
| 20 |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |
| 21 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |

2.3 User Requirement Specification and User Interface

Design

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **User Interface** | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| **U**  **R**  **S** | 1 | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  | x |  |  |  | X |  |  |  |  |  |  |  |
| 9 |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |
| 11 |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |
| 12 |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |
| 13 |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |
| 14 |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |
| 15 |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| 16 |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |
| 17 |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |
| 18 |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |
| 19 |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |
| 20 |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |
| 21 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |

2.4 User Requirement Specification and Use Case

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Use case diagram | | | | | |
| UC-01 | UC-02 | UC-03 | UC-04 | UC-05 | UC-06 |
| U R S | 1 |  | X |  |  |  |  |
| 2 |  | X |  |  |  |  |
| 3 |  | X |  |  |  |  |
| 4 |  | X |  |  |  |  |
| 5 |  | X |  |  |  |  |
| 6 |  | X |  |  |  |  |
| 7 |  | X |  |  |  |  |
| 8 |  | X |  |  |  |  |
| 9 |  | X |  |  |  |  |
| 10 |  |  |  | x |  |  |
| 11 |  |  |  |  | X |  |
| 12 |  |  |  |  | X |  |
| 13 |  |  |  |  | X |  |
| 14 |  |  | X |  |  |  |
| 15 |  |  |  | X |  |  |
| 16 |  |  | X |  |  |  |
| 17 |  |  |  |  |  | X |
| 18 |  |  |  | X |  |  |
| 19 |  |  |  | X |  |  |
| 20 |  |  |  |  |  | X |
| 21 |  |  |  |  |  | x |

2.5 User Requirement Specification and User interface

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | User interface | | | | | | | | | | | | | | |
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |
| U R S | 1 | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  | X |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  | X |  |  |  |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  | X |  |  |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |  |  | X |  |  |  |  |  |
| 11 |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |
| 12 |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |
| 13 |  |  |  |  |  |  |  |  |  |  |  | X |  |  |  |
| 14 |  |  |  |  |  |  | X |  |  |  |  |  |  |  |  |
| 15 |  |  |  |  |  |  |  | X |  |  |  |  |  |  |  |
| 16 |  |  |  |  |  | X |  |  |  |  |  |  |  |  |  |
| 17 |  |  |  |  |  |  |  |  |  |  |  |  | X |  |  |
| 18 |  |  |  |  |  |  |  |  | X |  |  |  |  |  |  |
| 19 |  |  |  |  |  |  |  |  |  |  | X |  |  |  |  |
| 20 |  |  |  |  |  |  |  |  |  |  |  |  |  | X |  |
| 21 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | X |

**Chapter Three | Appendix**

**2.1 User requirement specification**

URS-01 : School bus driver can register to the application.

URS-02 : School bus driver can register the parents to the application.

URS-03 : School bus driver can register the children to the application.

URS-04 : Parents can login to the application.

URS-05 : Parents can logout from the application.

URS-06 : Children can login to the application.

URS-07 : Children can logout from the application.

URS-08 : Registered(School bus driver) user can login to the application.

URS-09 : Registered(School bus driver) user can logout from the application.

URS-10 : Parents can cancel the schedule.

URS-11 : Parents can view their own route.

URS-12 : Children can view their own route.

URS-13 : Registered(School bus driver) user can view their own route.

URS-14 : Parents can checking their children's attendance.

URS-15 : Children can receive the message when the bus are nearby.

URS-16 : School bus driver can scan QR code for children attendance.

URS-17 : School bus driver can receive alert message from the system when they drive over the speed limit.

URS-18 : Parents can receive the message when their children arrive the school or home.

URS-19 : School bus driver can send an extra case message.

URS-20 : School bus driver can turn on the application.

URS-21 : School bus driver can turn off the application.

**2.2 Software requirement specification**

SRS-01 : System shall connect to the database.

SRS-02 : System shall provide Register page for school bus driver.

SRS-03 : System shall register unregister user to database.

SRS-04 : System shall validate the input of user information.

SRS-05 : System shall add the registered user(parents) into the school bus DB.

SRS-06 : System shall provide the login interface to user.

SRS-07 : System shall validate Email and passwords from user.

SRS-08 : System shall show the login error message.

SRS-09 : System shall provide logout button to user.

SRS-10 : System shall provide login button to user.

SRS-11 : System shall provide a route interface to user.

SRS-12 : System shall provide a school bus position via google map api.

SRS-13 : System shall provide current location.

SRS-14 : System shall generator the QR code.

SRS-15 : System shall provide a QR code scanning interface.

SRS-16 : System shall scanning the QR code to check children attendance.

SRS-17 : System shall provide status checking for children.

SRS-18 : System shall send a message to children when the bus nearby.

SRS-19 : System shall send a message to parents when their children arrive the home.

SRS-20 : System shall send a message to parents when their children arrive the school.

SRS-21 : System shall cancel the school bus driver schedule.

SRS-22 : System shall calculate approximate arrival time.

SRS-23 : System shall send the message to the parent when have an extra case.

SRS-24 : System shall send a speed alert message to school bus driver

SRS-25 : System shall show registration error messages.

SRS-26 : System shall provide parents interface.

SRS-27 : System shall provide children interface.

SRS-28 : System shall  provide school bus driver interface.

SRS-29 : System shall turn on.

SRS-30 : System shall turn off.

SRS-31 : System shall provide main interface.

SRS-32 : System shall provide “Register” button.

SRS-33 : System shall provide “register” button(For register the user data).

SRS-34 : System shall provide the confirm pop-up.

SRS-35 : System shall provide the “Yes” button.

SRS-36 : System shall provide the “No” button.

SRS-37 : System shall provide the “Close” button

SRS-38 : System shall provide “Check Attendance” button.

SRS-39 : System shall provide “Scan QR code” button.

SRS-40 : System shall send the message to parents.

SRS-41 : System shall send the message to children.

SRS-42 : System shall provide type of case interface.

SRS-43 : System shall provide extra case button.

SRS-44 : System shall provide text field to user to input Email.

SRS-45 : System shall provide “Message” button.

SRS-46 : System shall provide Message interface.

SRS-47 : System shall provide text field to user to input passwords.

SRS-48 : System shall provide Check box to user to select the gender.

SRS-49 : System shall provide text field to user to Phone number.

SRS-50 : System shall provide text field to user to input Firstname.

SRS-51 : System shall provide text field to user to input Lastname.

SRS-52 : System shall provide text field to user to input School Name.

SRS-53 : System shall provide text field to user to input address.

SRS-54 : System shall provide text field to user to input telephone number.

SRS-55 : System shall provide button to attach the image.

SRS-56 : System shall provide check box to user to select the types of parents.

SRS-57 : System shall provide text field to user to input car license plate.

SRS-58 : System shall provide select box to user to select the car brands .

SRS-59 : System shall provide select box to user to select the car colors .

SRS-60 : System shall provide Register page for Parents/Children.

SRS-61 : System shall provide select box to user to select the type of parents.

SRS-62 : System shall provide “Register as Parents/Children” button.

SRS-63 : System shall provide “Register as School bus driver” button.

SRS-64 : System shall provide text field to user to input Email(For login).

SRS-65 : System shall provide text field to user to input passwords(For login).

SRS-66 : System shall show the error message ”ERROR” when QR code cannot be read.

**2.3 Use cases**

UC-01 : Overall system

UC-02 : Member system

UC-03 : Attendance checking system

UC-04 : Notify system

UC-05 : Alert system

UC-06tracking

**2.4 Activity diagram**

AD-01 : Register as School bus driver

AD-02 : Register as Parents

AD-03 : Register as Children

AD-04 : Login

AD-05 : Logout

AD-06 : Scan QR code for children attendance

AD-07 : Checking the children attendance

AD-08 : Receive the message when the bus are nearby

AD-09 : Receive the message when their children arrive the school or home

AD-10 : Cancel Schedule

AD-11 : Extra case message

AD-12 : View the route

AD-13 : Alert message

AD-14 : Turn on application

AD-15 : Turn off application

**2.4 Sequence diagram**

SQD-01 : Register as School bus driver

SQD-02 : Register as Parents

SQD-03 : Register as Children

SQD-04 : Login

SQD-05 : Logout

SQD-06 : Scan QR code for children attendance

SQD-07 : Checking the children attendance

SQD-08 : Receive the message when the bus are nearby

SQD-09 : Receive the message when their children arrive the school or home

SQD-10 : Cancel Schedule

SQD-11 : Extra case message

SQD-12 : View the route

SQD-13 : Alert message

SQD-14 : Turn on application

SQD-15 : Turn off application

2.5 User interface

UI-01 : Main interface

UI-02 : Login interface

UI-03 : Register interface for School bus

UI-04 : Register interface for Parent/Children

UI-05 : Parents interface

UI-06 : School bus driver interface

UI-07 : Children interface

UI-08 : Track interface

UI-09 : Children attendance interface

UI-10 : Cancel schedule interface

UI-11 : Message interface

UI-12 : Confirm pop-up interface

UI-13 : Extra case interface

UI-14 : QR code scan interface