

# **Software Requirements Specification**

Children Monitoring System Android

Software Requirements Specification

2.0

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## Revision History

Date	Description	Author	Comments
09/15/2017	1.0	Aditya S T P	Discussed the scope and added the initial requirements.
09/29/2017	1.1	Aditya S T P, Kamal Meduri	Included the Design related documentation for the project.
10/13/2017	1.2	Aditya S T P	Modified the Data Flow Diagram and Sequence Diagram.
11/17/2017	1.3	Aditya S T P	Added the User Manual chapter.
11/27/2017	1.4	Aditya S T P	Added the System Manual chapter.
03/28/2018	1.5	Aditya S T P	Added the Testing chapter.
04/04/2018	2.0	Aditya S T P	Revised the User manual and System manual chapters.

## Document Approval

The following Software Requirements Specification has been accepted and approved by the following:

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## 1. Introduction

- 1.1. **Purpose:** The main purpose of the project is to provide a Children monitoring application for the parents in order to monitor the activities of their children. It records the data of the child location and maintains a history for the same. It provides the location information of the children to the parent.
- 1.2. **Scope:** This system provides the parent with the information of child location but not the activities performed by the children and the video recording of the children.
- 1.3. **Definitions, Acronyms, and Abbreviations:**
- CMS: Children Monitoring System
  - GPS: Global Positioning System
  - Use Case: A disciplined method of describing the typical behavior of a component of the system.
- 1.4. **References:** Below are the references used for understanding of the project concept
- [https://www.researchgate.net/publication/302583667\\_Developing\\_a\\_Children\\_Monitoring\\_System\\_for\\_Mobile\\_Devices](https://www.researchgate.net/publication/302583667_Developing_a_Children_Monitoring_System_for_Mobile_Devices)
- 1.5. **Overview:** Using the collaboration of GPS and smart device in the project development leads to a technology touch to people who wants to track their children.

## 2. General Description

- 2.1. **Product Perspective:** The Product perspective is of the parent perspective and from which parent can monitor and as well as manage the details/information of the children added in the application.
- 2.2. **Product Functions:** The main function is to track the location of the child based on GPS and it records into the historical data of the parent mobile device.
- 2.3. **User Characteristics:**
- Client: Person/organization for whom the software has developed. The client wishes to see the design as required out by the system and be able to see what exactly they are buying.
- Business Analyst: Person considered as the general advisor and analyzing expert who is responsible for finalizing the requirements and consider all the main factors related to the project.

**Team Lead:** A team leader is the person who provides the instructions and information to a group of individuals i.e. team, who are responsible for achieving a certain goal.

**UI Designers:** People who design the application with mockups and User interface. They use the requirements of the project and design the user interface for the system.

**Software Developers:** People who develop the code according to the design/layout and make the application work with respect to the client requirement. They also maintain the existing code of the application if any issue comes in the application.

**Quality Analyst:** Users who are responsible for testing the application and ensure that the developed application is intact with the requirements and issue-free. In addition, the code is feasible and working in all scenarios and conditions.

**Database Engineer:** The person who deals with the entire database of the system and handles any glitches in the database when any update/changes in the development occur.

**2.4. General Constraints:** Application provides the login form in which parent needs to enter credentials with unique username/password for each child. This factor is the main constraint.

**2.5. Assumptions and Dependencies:** All the major tasks of the project categorized based on their respective dependencies and this step followed by initial project requirements identification and initial system setup. The hardware and software has upgraded to the required level and finally a network has to be setup that includes software-network interactions as well as network integrity.

### 3. Specific Requirements

#### 3.1. External Interface Requirements

- 3.1.1. **User Interfaces:** User interface of the application rely on the layout and the performance. UI Designer is the responsible person for creating creative and ease-of-use user interface.
- 3.1.2. **Hardware Interfaces:** Network of devices connected to each other leads the product work efficiently.
- 3.1.3. **Software Interfaces:** In order to work the code expectedly, software should built accurately and without bugs.
- 3.1.4. **Communications Interface:** Communication plays a key role in the team in order to express their views, ideas and to give their best for the project.

- 3.2. **Functional Requirements:** Functional requirements are the functionalities dealing with the features in Login page, Homepage, Records management page and Settings page.

**Login page**

1. Create Header/Label displaying the name of the app for all the pages
2. Create Username and password fields in Login page
3. Create 'Sign in' button in Login page
4. Create Forgot password option in Login page
5. Create 'New user/create account' option in the Login page

**Home page**

1. Create 'Add your children' button in Homepage
2. Create/Display the child details as a button in Homepage
3. Ability to display the added child in the Homepage

**Records Management**

1. Display the name and picture of the child
2. Create 'Location' button and trace the location with the help of this button
3. Create 'See history' button and display the data till date
4. Create 'Today Activities' button and display activities to do by parent for the child on that respective day
5. Create 'Delete child' button and confirm before deletion

**Settings**

1. Display name and profile picture of the user (parent)
2. Display email, phone number of the user
3. Create Delete Account button and confirm with the user before deletion
4. Create 'Sign-out' button to log out of the application

- 3.3. **Use Cases:** Information of children provided to the parents. Location tracing, duration of activities in turn can work on safety measures of the children.

- 3.4. **Classes/ Objects:** Parents and children are key entities in the project.

- 3.5. **Non- Functional Requirements:**

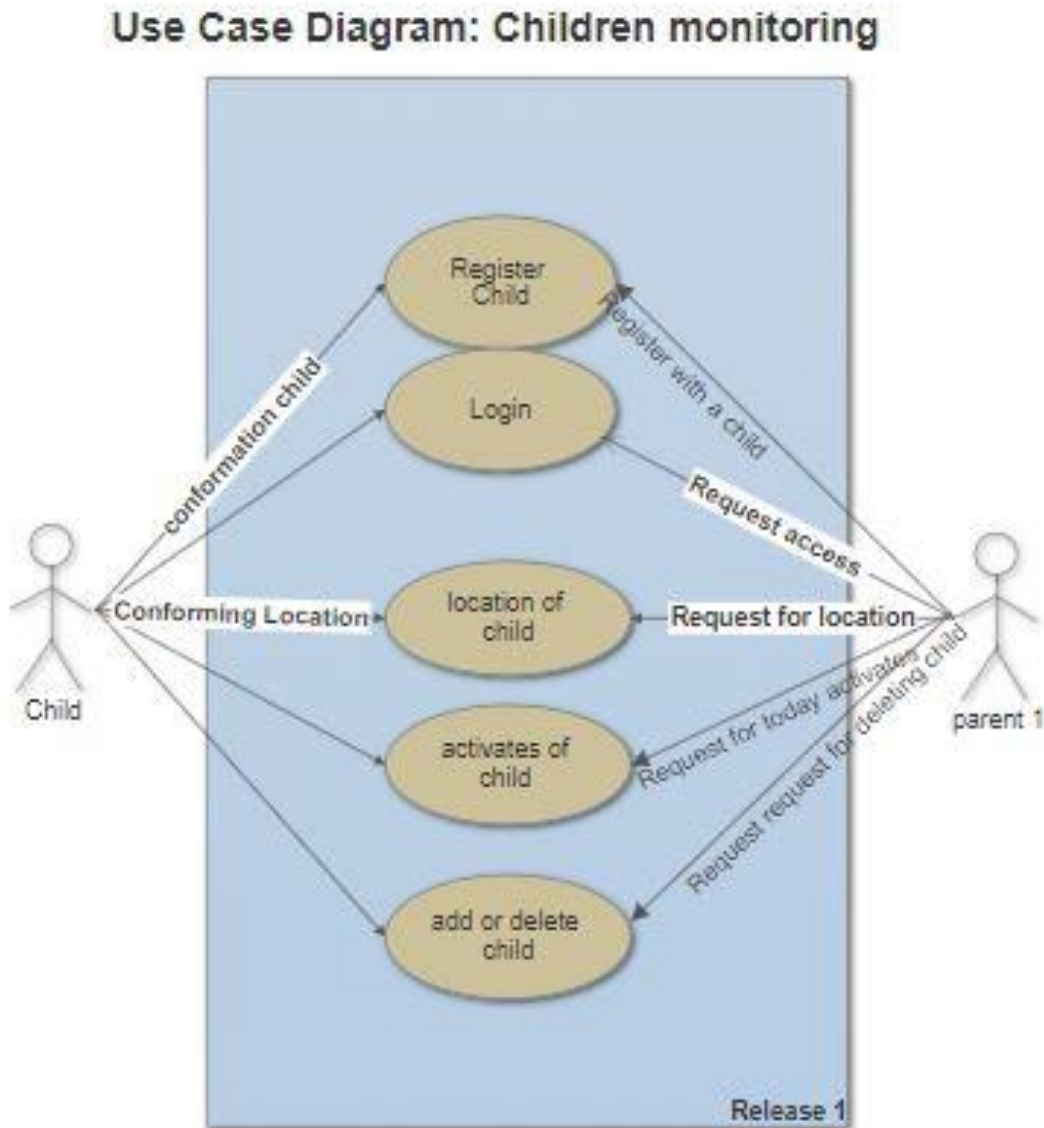


- 3.5.1. **Performance:** Children aspects are captured through the monitoring device. In any situation their activities are monitored and information is recorded which can be viewed by parents.
  - 3.5.2. **Reliability:** The technical support team verifies the monitoring system continuously such that if any problem occurs in the project, it is cleared immediately providing an alternative for monitoring.
  - 3.5.3. **Availability:** All the records of child monitoring system are available to parents in their respective account. They can easily access their accounts in any time.
  - 3.5.4. **Security:** Login page is developed such that it is required to enter unique credentials for security purpose and can only be logged-in by parents. Database information is always securely protected by providing access to only authorized personals.
- 3.6. **Inverse requirements:** Currently, there are no inverse requirements for this project.
- 3.7. **Design Constraints:** Design constraints for Mobile version (Android) are layout, dimensions of the device, content of page, menu bars, color formatting of contents, navigating through the pages.
- 3.8. **Logical Database and Hardware Requirements:** Below are the hardware and software requirements for the project.

Requirement SNo.	Name	Description
1	Windows PC with 500 GB of HDD	Desktop or Laptop/ Hardware
2	Android Studio	Software
3	Latest Java Runtime Environment and Java SE JDK, Android SDK tools	Development software
4	Android Device	Mobile device
5	Laptops	Business Laptop's for developers
6	SQL server	Database management system software
7	Printers	Hardware for printing purposes
8	Wiring, LAN and integration cables	Connection cables

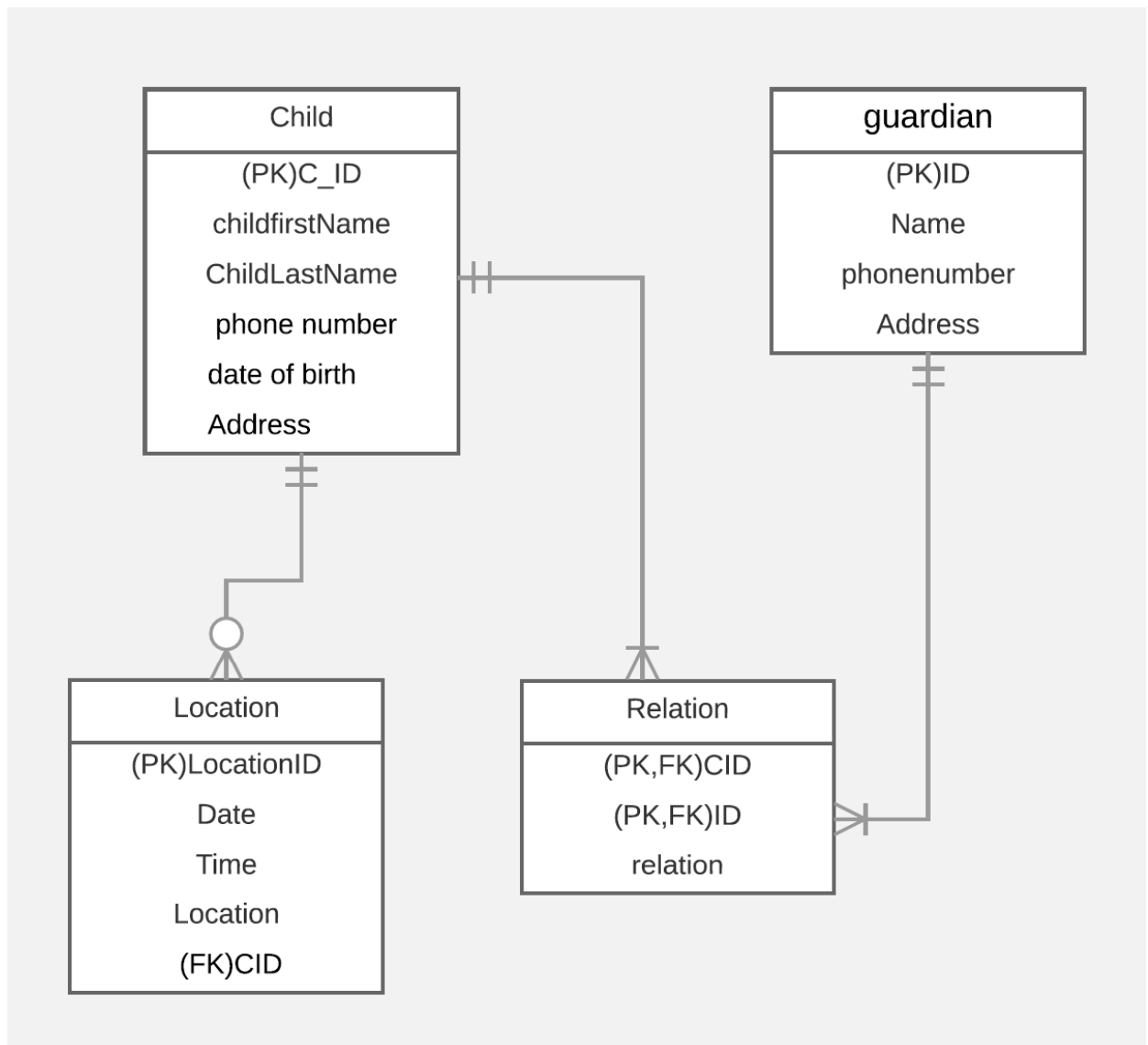
3.9. **Other Requirements:** Information of police department are required in order to contact them in case of any emergency occurred for the child.

### 3.10. Use Case Diagrams



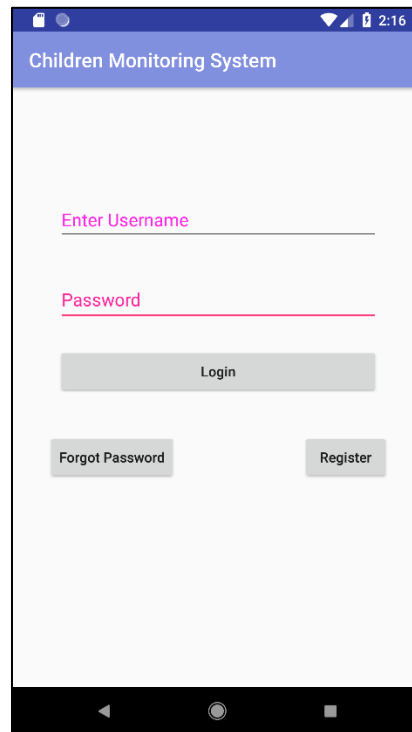
## 4. Design

### 4.1. ER diagram



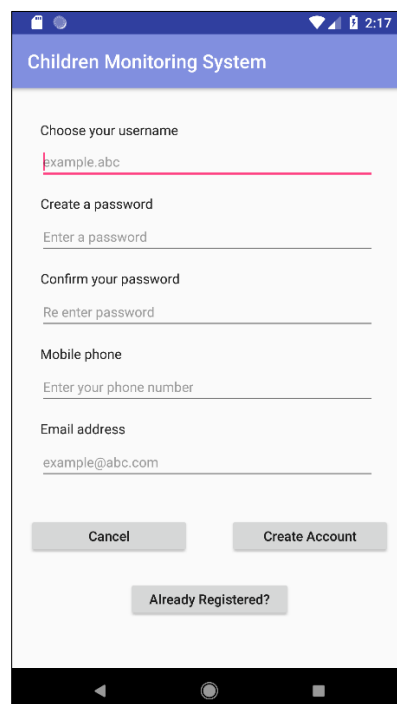
## 4.2. GUI

First page is Login page, where the user should enter username and password in order to login into the application. It will have Forgot Password and Create account links.



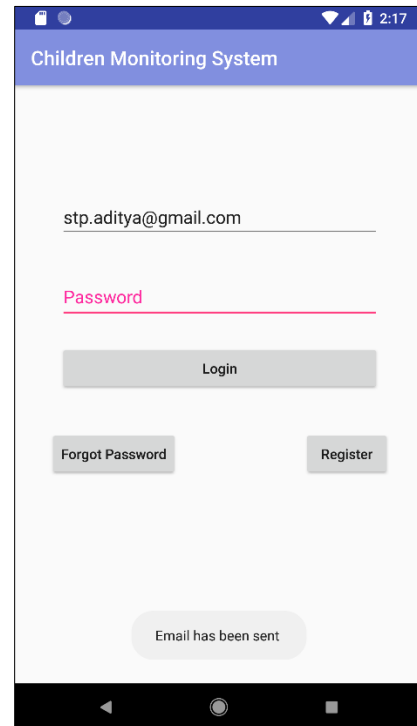
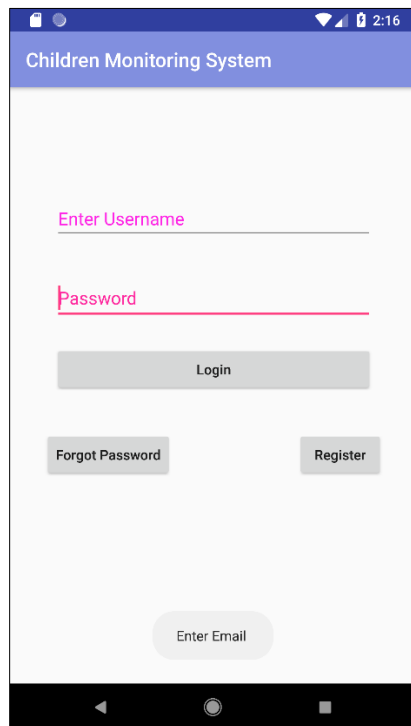
The screenshot shows the login interface of the 'Children Monitoring System' app. At the top, there is a blue header bar with the app's name. Below the header, the page has a light gray background. It features two input fields: 'Enter Username' and 'Password', both with pink placeholder text. Below these fields is a gray 'Login' button. At the bottom, there are two smaller gray buttons: 'Forgot Password' on the left and 'Register' on the right. The Android navigation bar is visible at the very bottom.

New user link redirects to Signup page where we have to enter all the required details for creating new account.

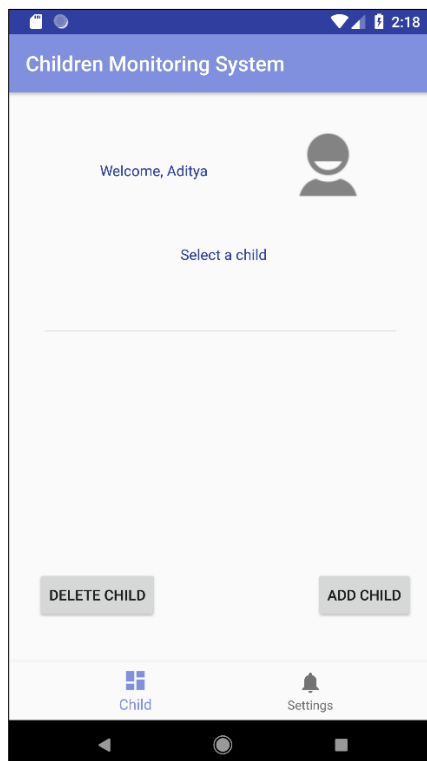


The screenshot shows the signup interface of the 'Children Monitoring System' app. It has a blue header bar with the app's name. The background is light gray. The form consists of several sections: 'Choose your username' with a pink placeholder 'example.abc'; 'Create a password' with a pink placeholder 'Enter a password'; 'Confirm your password' with a pink placeholder 'Re enter password'; 'Mobile phone' with a pink placeholder 'Enter your phone number'; and 'Email address' with a pink placeholder 'example@abc.com'. At the bottom, there are two gray buttons: 'Cancel' on the left and 'Create Account' on the right. Below these buttons is a gray button labeled 'Already Registered?'. The Android navigation bar is visible at the very bottom.

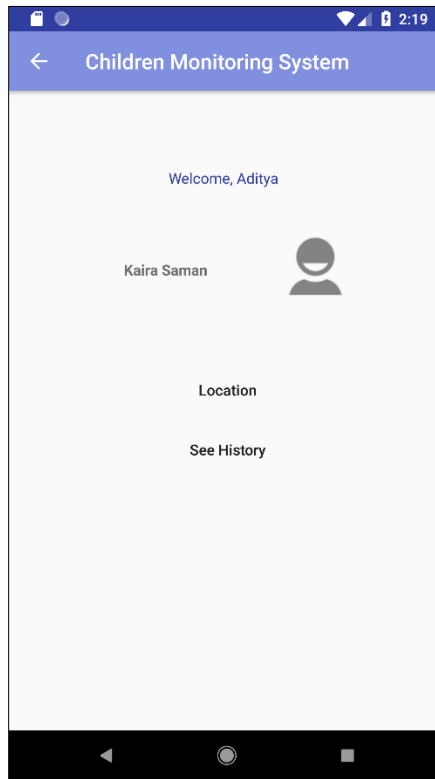
Forgot password page is displayed with email id field and submit button, which gives the link to activate the account again.



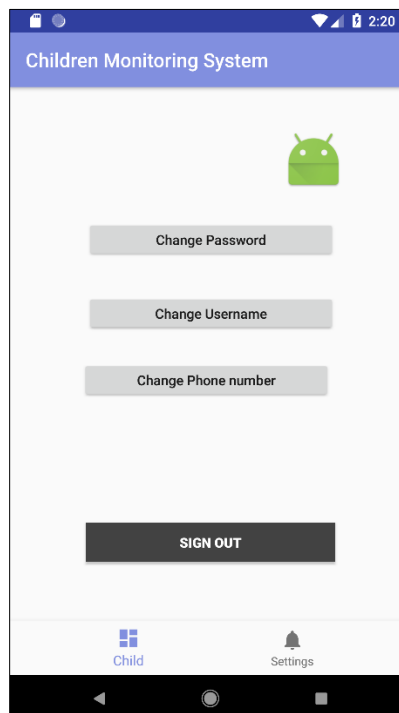
After successful login, home page should be displayed with 'Add your children' button and Delete child buttons.



After clicking on any child in Home page, it redirects to Child page where Location, See history options are displayed.

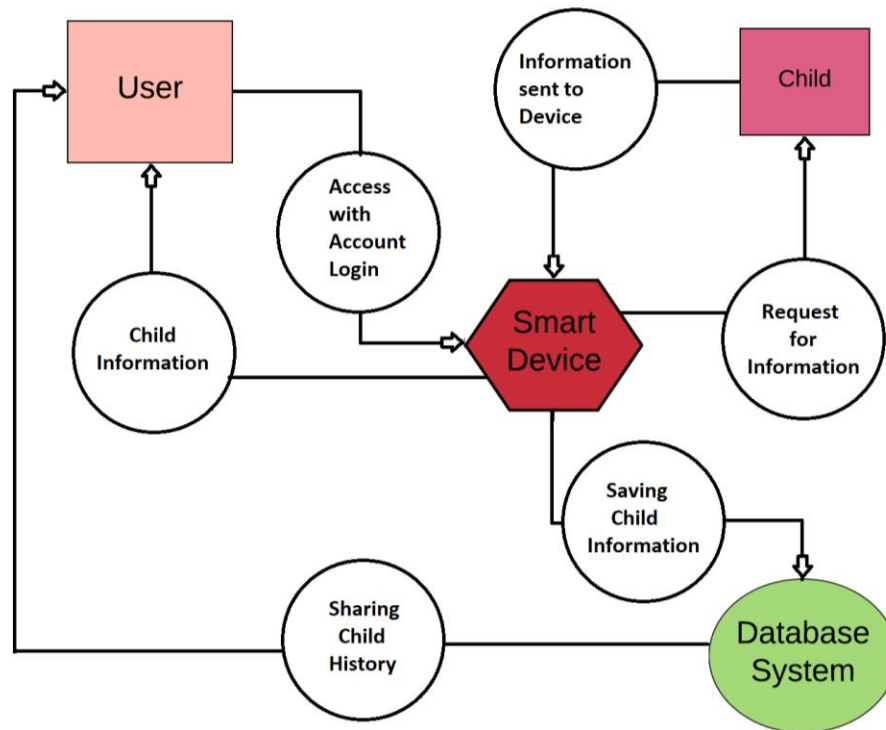


In Settings page, the user (parent) details with image, username, turn off notifications, change password, change name, change phone number, change profile picture options.

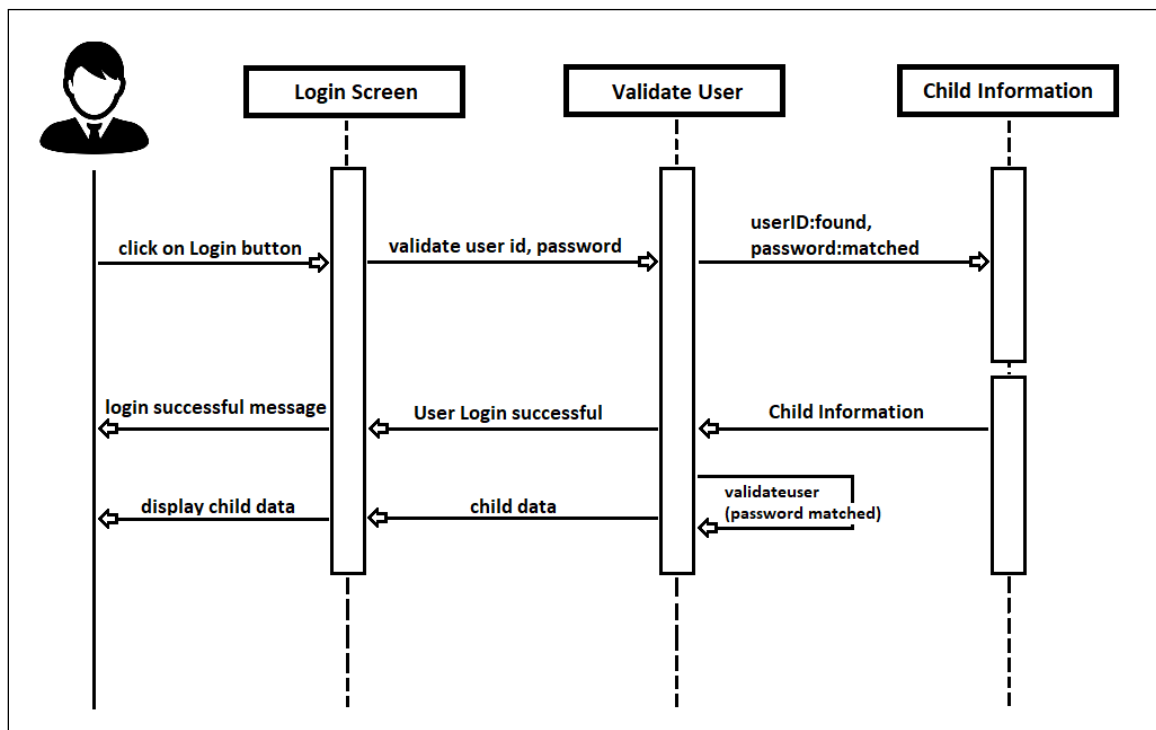


## 5. Analysis Models

### 5.1. Data Flow Diagram



### 5.2. Sequence Diagram



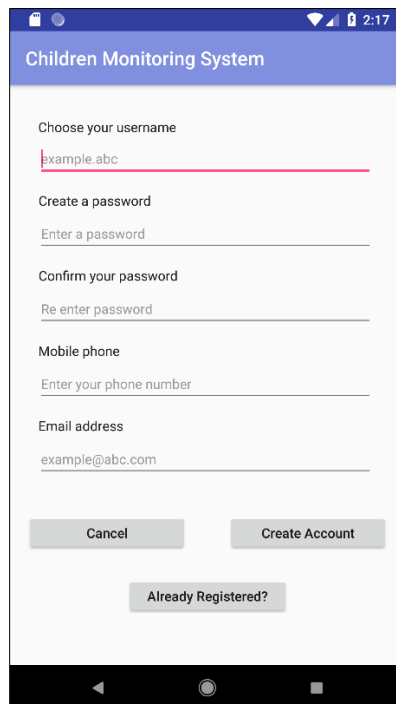
## 6. User Manual

### 6.1. Install the application

Download and install the application.

### 6.2. Register for the application

Launch the application and 'New User/Create account' link in the page is displayed. Click on the link and it will redirect to 'Register' or 'Sign up' page as below.



Children Monitoring System

Choose your username  
example.abc

Create a password  
Enter a password

Confirm your password  
Re enter password

Mobile phone  
Enter your phone number

Email address  
example@abc.com

Cancel Create Account

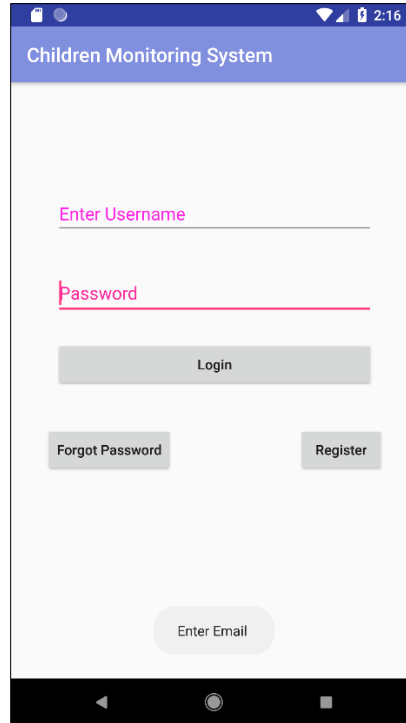
Already Registered?

Fill all the mandatory fields and click on 'Sign up' button.

### 6.3. Login

After successful registration, Login page is displayed with username and password fields as below

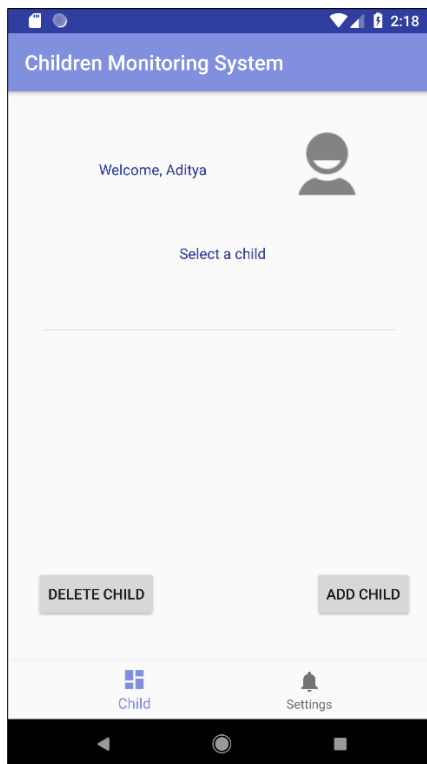




Enter the username and password given while registering the application and click on Login button.

### 6.4. Add a Child

After you login to the application with your username and password, Home page is displayed with details as below.

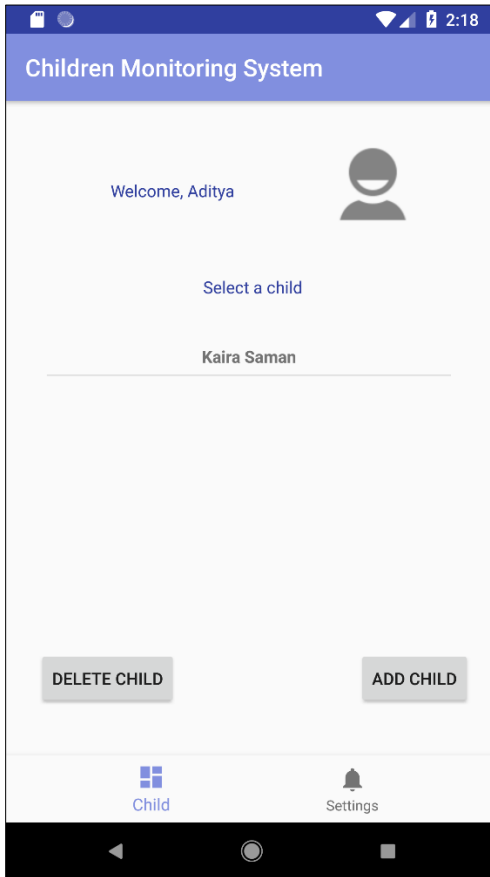


Click on the 'Add your children' button and a page is displayed as below. Enter the details and click on 'Add' button.

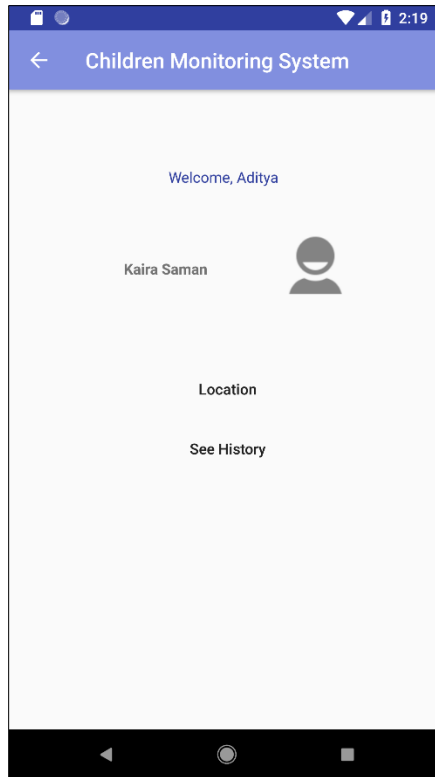
A screenshot of the "Add Child" form within the "Children Monitoring System" app. The form has a blue header bar with a back arrow and the title. It contains three input fields: "Name" with placeholder text "Enter child name", "ID" with placeholder text "Enter child ID", and "Email ID" with placeholder text "Enter child Email". At the bottom of the form are two buttons: "Cancel" on the left and "Add" on the right.A screenshot of the "Add Child" form with data entered. The "Name" field contains "Kaira Saman", the "ID" field contains "123", and the "Email ID" field contains "kaira.saman@gmail.com". The "Cancel" and "Add" buttons are at the bottom.

### 6.5.Track location of the child

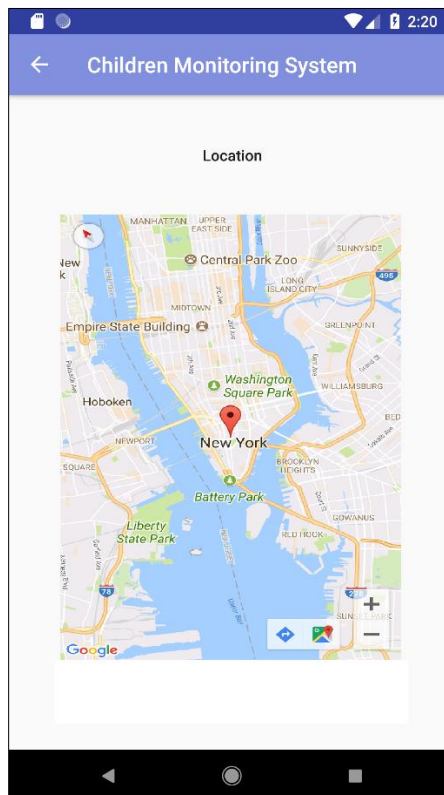
After adding a child, Home page is displayed with your added child for example, Child 1 as below.



Click on the added child and Child page is displayed with details as below.

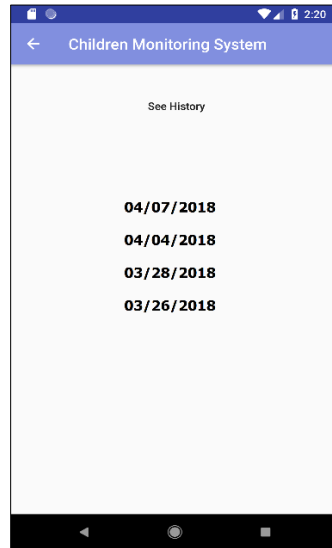


Click on the Location and view the child location as below.



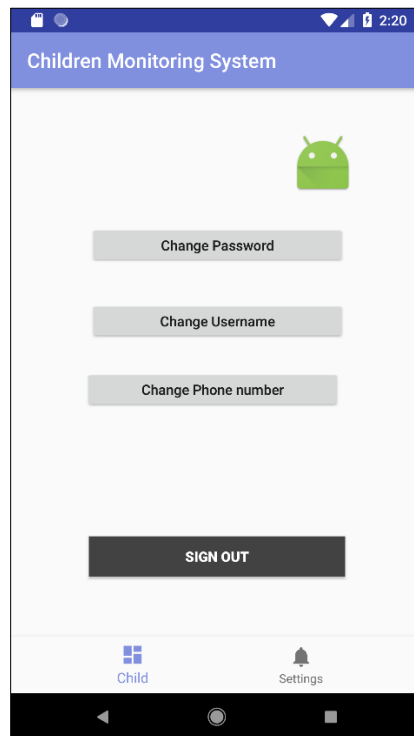
### 6.6. Track history of the child

Click on the 'See history' button and details of child i.e. the list of dates with detailed information is displayed as below.



### 6.7. Change Settings

Change the user (parent) details with image, username, turn off notifications, change password, change name, change phone number and change profile picture options in the Settings page.



## 7. System Manual

### 7.1. Application Requirements

Requirement SNo.	Name	Description
1	Desktop i.e. Windows or Mac	Desktop or Laptop/ Hardware in order run the application
2	Android Device	Android mobile device with latest version
3	iOS Device	iOS mobile device with latest iOS version

### 7.2. Application Requirements

#### 7.2.1. Install the application

Download and install the application.

#### 7.2.2. Register for the application

Launch the application and 'New User/Create account' link in the page is displayed. Click on the link and it will redirect to 'Register' or 'Sign up' page as below.

Children Monitoring System

Choose your username  
example.abc

Create a password  
Enter a password

Confirm your password  
Re enter password

Mobile phone  
Enter your phone number

Email address  
example@abc.com

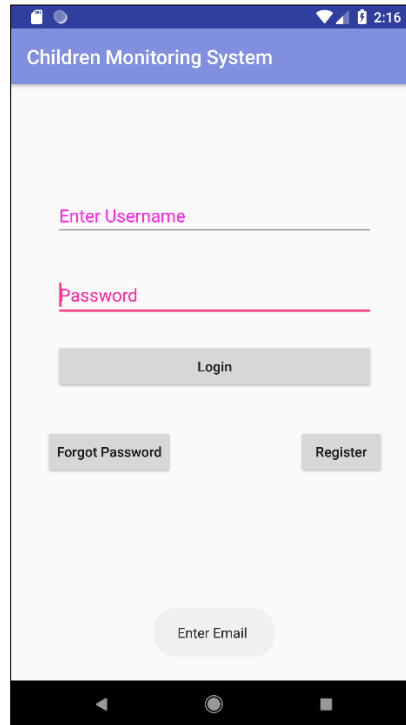
Cancel Create Account

Already Registered?

Fill all the mandatory fields and click on 'Sign up' button.

### 7.2.3. Login

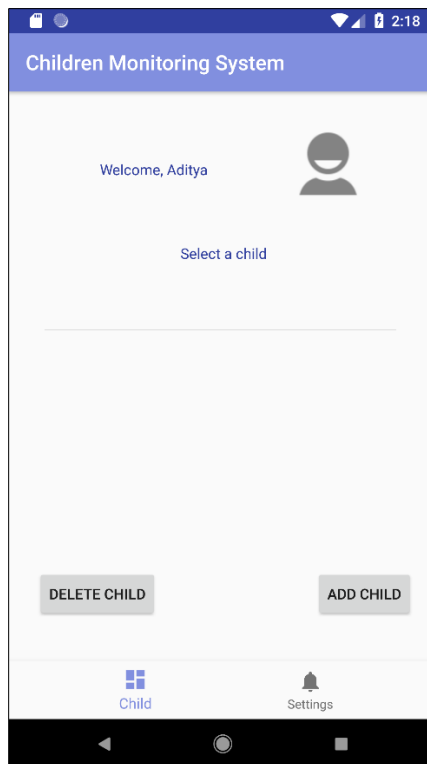
After successful registration, Login page is displayed with username and password fields as below

A screenshot of an Android application interface titled "Children Monitoring System". The interface features a light gray background. At the top, there is a blue header bar with the text "Children Monitoring System". Below the header, there are two input fields: "Enter Username" and "Password", both with pink placeholder text. Below these fields is a gray "Login" button. Further down, there are two smaller gray buttons: "Forgot Password" on the left and "Register" on the right. At the bottom of the form area, there is a rounded gray button labeled "Enter Email". The bottom of the screen shows the standard Android navigation bar with back, home, and recent apps icons.

Enter the username and password given while registering the application and click on Login button.

### 7.2.4. Add a Child

After you login to the application with your username and password, Home page is displayed with details as below.



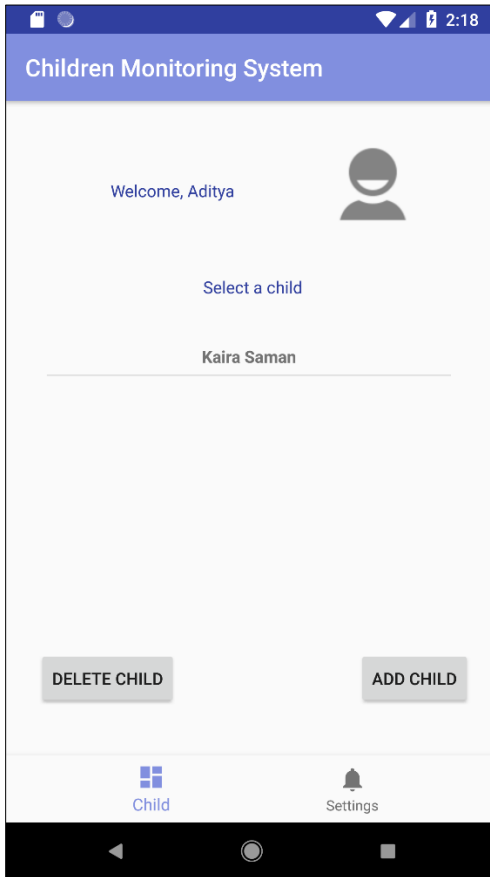
Click on the 'Add your children' button and a page is displayed as below. Enter the details and click on 'Add' button.

A screenshot of the "Add Child" form within the "Children Monitoring System" app. The form has a blue header bar with a back arrow and the title. It contains three input fields: "Name" with the placeholder "Enter child name", "ID" with the placeholder "Enter child ID", and "Email ID" with the placeholder "Enter child Email". At the bottom of the form are two buttons: "Cancel" on the left and "Add" on the right.A screenshot of the "Add Child" form with data entered. The "Name" field contains "Kaira Saman", the "ID" field contains "123", and the "Email ID" field contains "kaira.saman@gmail.com". The "Cancel" and "Add" buttons are at the bottom.

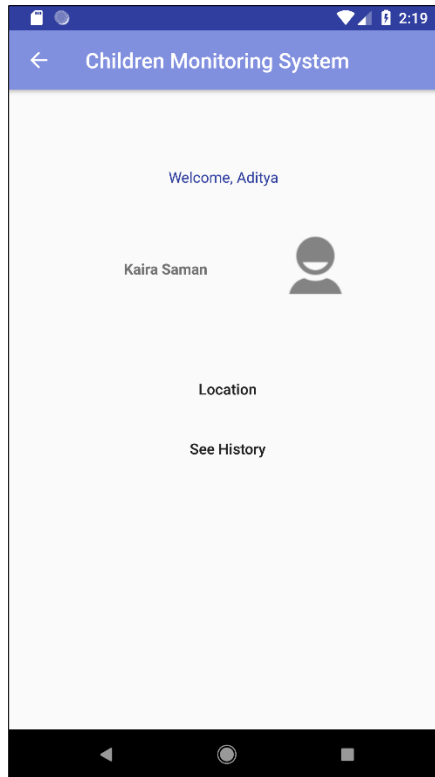


### 7.2.5. Track location of the child

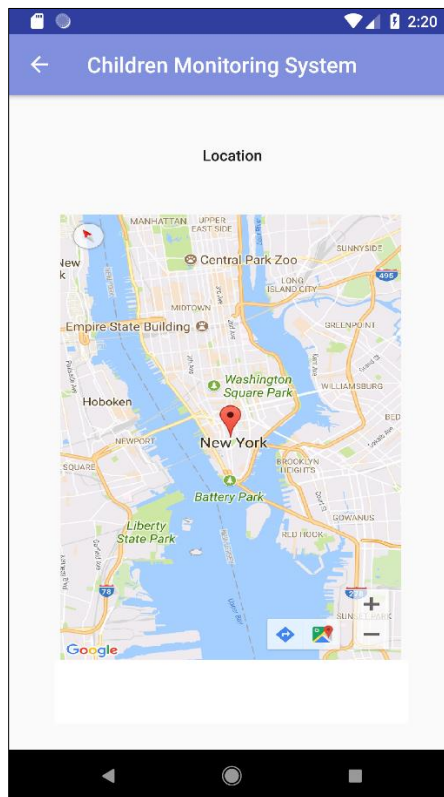
After adding a child, Home page is displayed with your added child for example, Child 1 as below.



Click on 'Child 1' button and Child page is displayed with details as below.

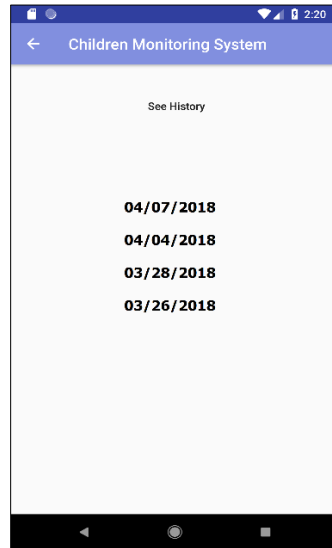


Click on the Location and view the child location as below.



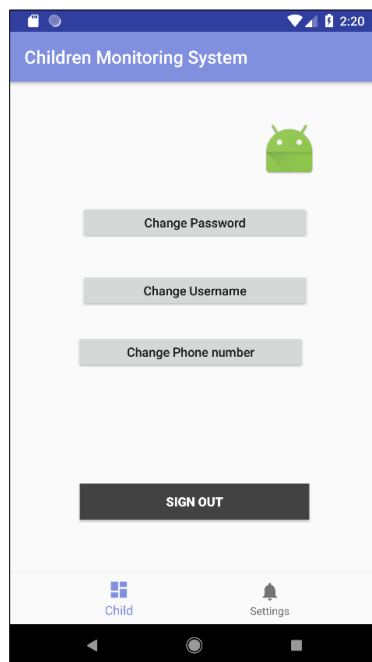
### 7.2.6. Track history of the child

Click on the 'See history' button and details of child i.e. the list of dates with detailed information is displayed as below.



### 7.2.7. Change Settings

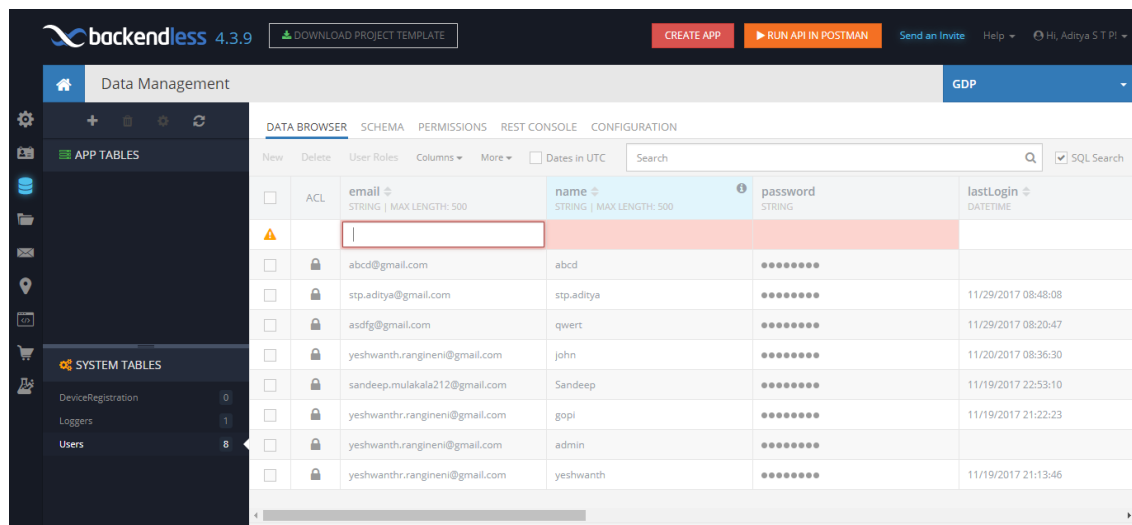
Change the user (parent) details with image, username, turn off notifications, change password, change name, change phone number and change profile picture options in the Settings page.



### 7.3. Add a User/ Delete a User

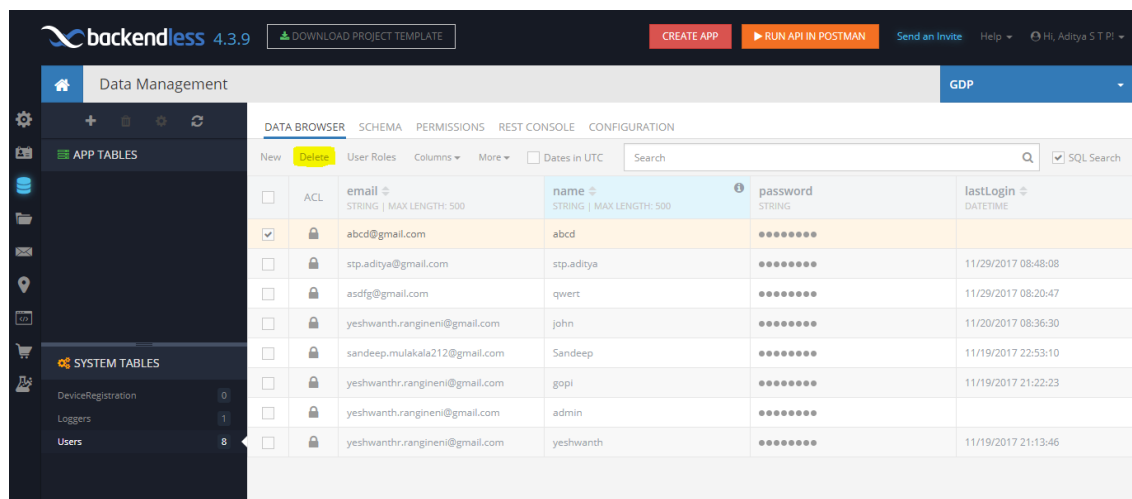
#### 7.3.1. Add a User

Admin can add a user directly in the Backendless. First login into the Backendless application and select the respective project. Click on Data icon and select 'users' from 'System tables' section. Click on 'New' button and enter email, name and password fields and the user with email id is successfully added to the database.



#### 7.3.2. Delete a User

Admin can delete a user directly in the Backendless. First login into the Backendless application and select the respective project. Click on Data icon and select 'users' from 'System tables' section. Select a user with checkbox beside it and click on 'Delete' button and the selected user is deleted successfully from the database.



## 8. Testing

### 8.1. Register

- a. Verify that a new user is registered upon entering all the mandatory fields in the registration form and submitting the signup form.
- b. Verify the password is in encrypted form when entered in the signup form.
- c. Verify that Signup button is displayed and it is enabled.
- d. Verify that page is redirected to home page after registering a user.

### 8.2. Login

- a. Verify the user is able to enter the username in the username field.
- b. Verify that password entered is not displayed and encrypted.
- c. Verify that user is able to login into application with valid user credentials.
- d. Verify that user is not logged into application with invalid user credentials.
- e. Verify that Forgot password button is displayed in the Login page.
- f. Verify that 'New user/Create account' button is displayed in the login page.

### 8.3. Forgot password

- a. Verify that password is retrieved upon entering the email address and submitting the submit button in forgot password page.
- b. Verify that user is able to login to the application with the new password.

### 8.4. Add a Child

- a. Verify that Home page is displayed with username of the parent, user image and Add child button.
- b. Verify that Child name, phone number and date of birth fields are displayed in the Add child page.
- c. Verify that new child is added upon clicking the 'Add child' button in the Home page.
- d. Verify that added child is displayed in the list of children in the home page.

### 8.5. Delete Child

- a. Verify that Home page is displayed with Delete child button.
- b. Verify that selected child is deleted upon clicking the 'Delete child' button in the Home page.

- c. Verify that deleted child is removed from the list of children in the home page.

#### 8.6. Track location of the child

- a. Verify that children location is displayed upon selecting the respective child.

#### 8.7. See history

- a. Verify that list of dates are displayed in the 'see history' page based on the location tracking data.
- b. Verify that dates are displayed with location details beside it.

#### 8.8. Settings

- a. Verify that Change profile picture, change password, change username options are displayed in the Settings page.
- b. Verify that profile picture is changed upon selecting a new picture.
- c. Verify that password is changed to a new password upon accessing the change password button.
- d. Verify the username is changed and displayed in the application upon accessing the change username button.