REMOTE PATIENT MONITORING SYSTEM

Domain: Healthcare

Location: US

Project description:

Most fatal injuries happen when the patient faints/falls after getting out of bed. Insufficient lighting also causes difficulty in avoiding obstacles that could lead to falls. Even when caregivers and family members are around there could be times when the patient has to be left unattended.

- Provide comfort and peace of mind for patients having issues with falls
- Real time notification of family members and/or care providers when the patient is up
- Innovative source of lighting for patients in need
- Monitor balance, weight and patterns in movements on the mat

Requirements:

- Track patient movement when getting off the bed.
- Notify family/caregivers through alarms/app notifications if a patient fails to get back to bed within a stipulated time.
- Turn ON the lights automatically when the patient wants to get up from the bed.
- Switch off the lights automatically once the patient comes back to bed.

Solution proposed:

The core part of the project was developing:

- the switch mechanism placed within a floor mat, placed beside the bed, that could sense the patient's movement of stepping out of/in to bed.
- control device that monitors the "stepping" trigger, activates the LEDs on the mat, communicates with other "connected" devices (like lights, etc.), and sends the alerts/notifications.

The web part of the project was to provide a comprehensive interface to customize and control the various devices.

1. Profile creation
   Create the customer profile. Link the product id to the customer account.
2. Manage devices:
   a. Allows the customer to view a list of all devices that are ""linked"" with the controller device.
   b. Enables the customer to configure the device settings.
   c. Also provides a list of devices that have been "unlinked" from the controller device.
3. Enable SMS notifications by adding and verifying phone details.
4. Customize SMS notifications messages:
   a. when the patient steps on the mat for the first time (stepping down from the bed).
   b. when the patient steps on the mat for the second time (getting back in to bed).
   c. as an alert if the patient fails to step on the mat the second time, which could mean the patient needs help.
5. Toggle between 24 hour SMS alerts and keeping it in "standby" for a stipulated time. This is helpful when family members/caregivers are available.
6. Advanced settings:
   a. Set the time delay between logging in two consecutive steps on the mat. This reduces incidences of "false" triggers when the patient gets on the mat and steps on it the second time.
   b. Specify the time delay to send the SMS after the threshold time for the patient to step back on the mat elapses.
   c. Set the "standby" time that the mat will stay inactive after the "standby" button is pressed on the mat.
   d. Specify the time for which the LEDs on the mat will stay ON after the patient steps on the mat for the first time.

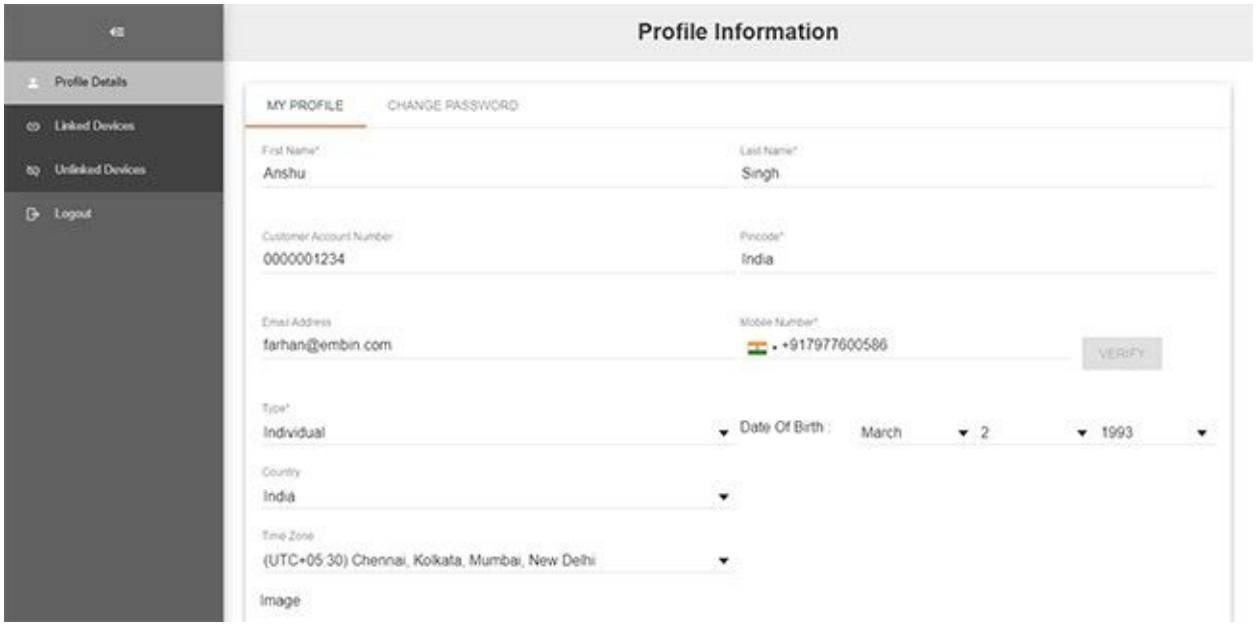
7. Alarm settings:
    a. Set the time for which the alarm will stay active once triggered.
    b. Set the action which will trigger the alarm
    c. Set the volume level of the alarm.

Technologies used:

- Express JS framework. Node.js

Web Screens:

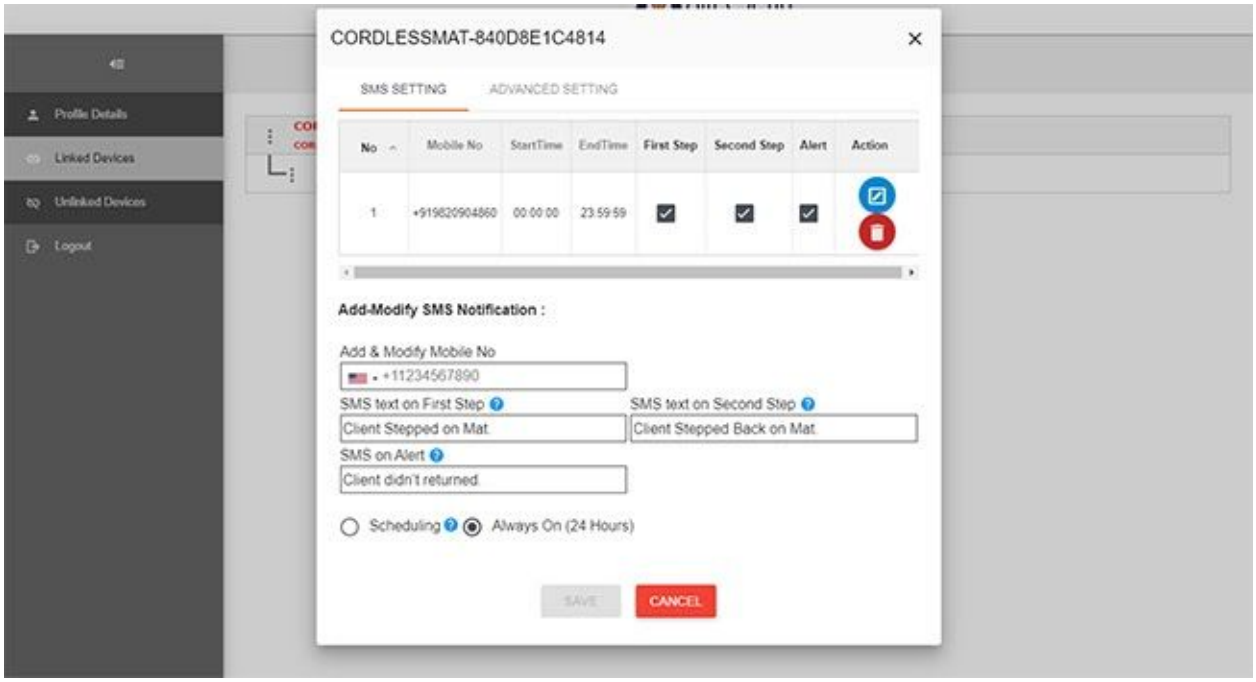
1. Profile



2. Linked devices

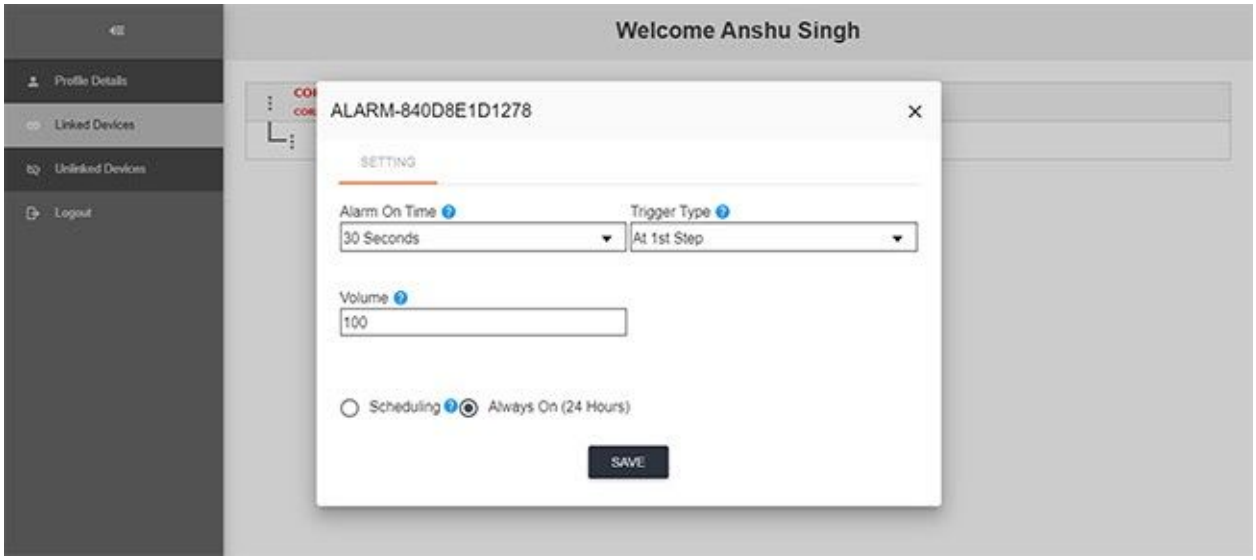
3. Controller menu

4. Controller settings



5. Device menu

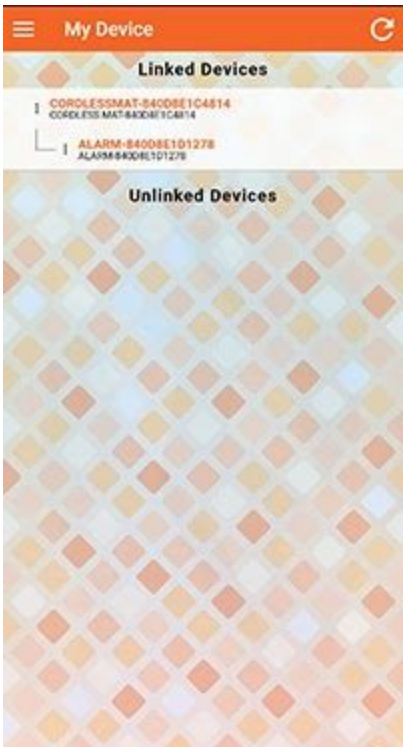
6. Device settings



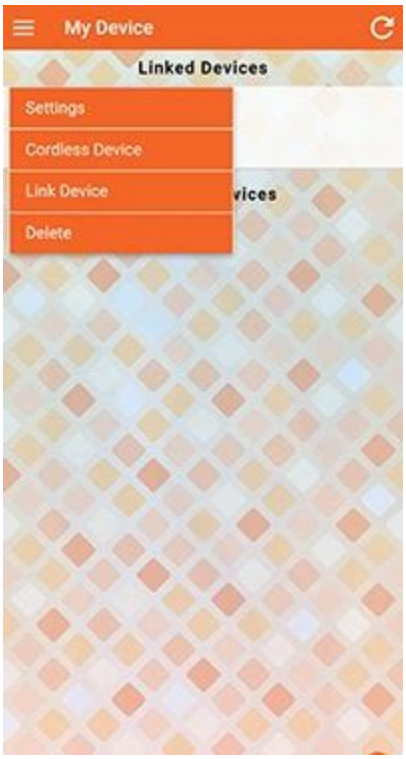
App Screens

Sign In
Enter Your Email Address
YOUR EMAIL
Create New Account
CONTINUE

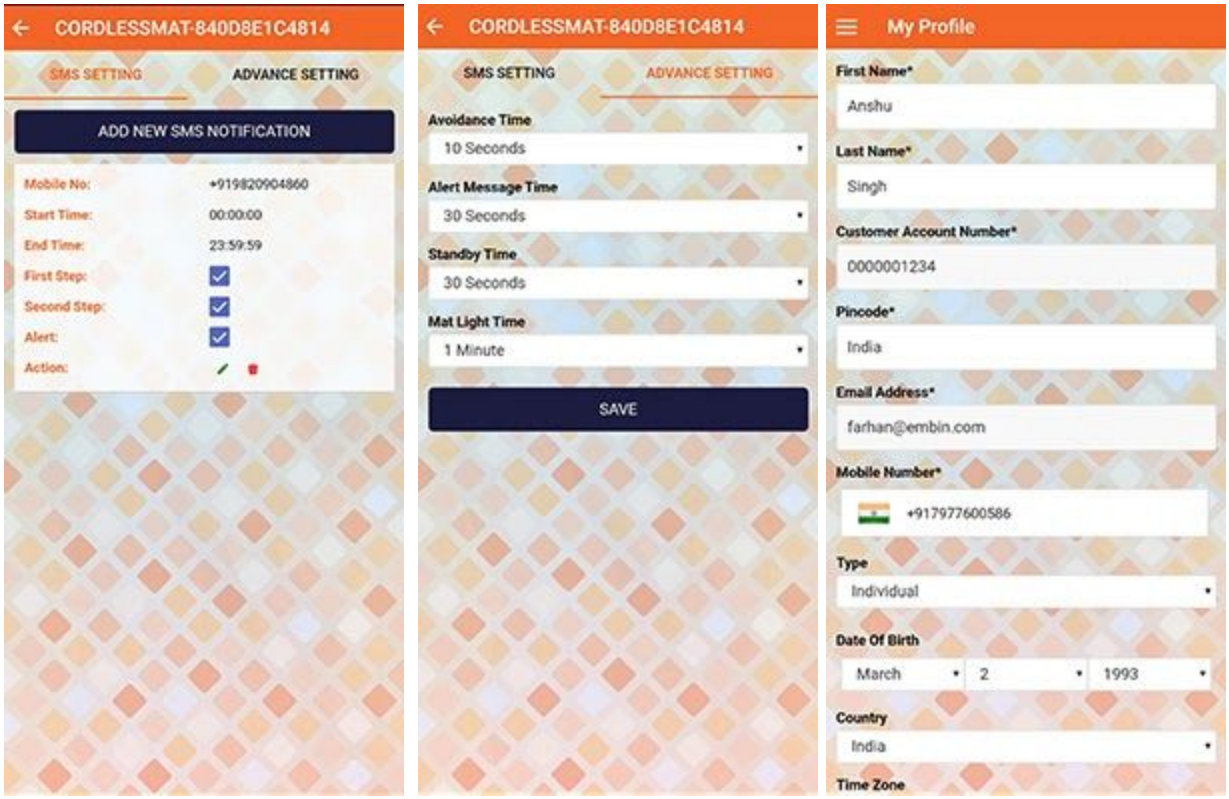
Welcome @embin.com
Enter Your Password
PASSWORD
Forgot Password?
LOGIN


My Device
Linked Devices
Unlinked Devices

My Device
Purchase Device
Profile
Change Password
Logout


My Device
Linked Devices
Settings
Cordless Device
Link Device
Delete

CORDLESSMAT-840D8E1C4814
SMS SETTING
ADVANCE SETTING
Avoidance Time
10 Seconds
Alert Message Time
30 Seconds
Standby Time
30 Seconds
Mat Light Time
1 Minute
SAVE


CORDLESSMAT-840D8E1C4814
SMS SETTING
ADVANCE SETTING
ADD NEW SMS NOTIFICATION
Mobile No:
+919820904860
Start Time:
00:00:00
End Time:
23:59:59
First Step:
Second Step:
Alert:
Action:
CORDLESSMAT-840D8E1C4814
SMS SETTING
ADVANCE SETTING
Avoidance Time
10 Seconds
Alert Message Time
30 Seconds
Standby Time
30 Seconds
Mat Light Time
1 Minute
SAVE
My Profile
First Name*
Anshu
Last Name*
Singh
Customer Account Number*
0000001234
Pincode*
India
Email Address*
farhan@embin.com
Mobile Number*
+917977600586
Type
Individual
Date Of Birth
March
2
1993
Country
India
Time Zone