Smart Baby Warmer Application

Existing Application & Structure

In Existing system multiple process & data acquisition is performed by Mobile Application like Site installation, Baby Onboarding (Admit, Update ,Draft Report ,Discharge),Alerts, Apgar timer, Feed timer, Trends(T1,T2,T3,Heater power ,Mode,Spo2 ,Pulse rate, PI, Sat-seconds),Settings, Baby weight etc.

1. Site installation & verification needs internet, without internet can’t do the site installation, In that we are verifying **sitecode** & **machineid** from the cloud.
2. Baby Onboarding from device side (baby admit, update) but internet is compulsory to check Machine id, Client id & site id from the cloud. (Cloud needs to verifying **sitecode** & **machinecode)**
3. Baby Discharge (draft report, discharge) from device side and data sync with cloud (internet is compulsory)
4. In Data acquisition – mobile application will communicate with Device/Hardware over BLE and get the data string in bytes array. For each type of data, a separate string is created and which is distinguished using different MID. Based on MID data is extracted in Mobile application side and dumped. If Internet is available, then data is sync with Cloud else stored in a Mobile app database and sync with Cloud when Internet is back/available. Here, based on Mobile app storage size data is stored offline.

Based on current architecture and logic when offline data is sync from multiple application to cloud then current cloud server can’t handle the all http request at the same time. (so, need to increase the server hardware configuration or change the current architecture of data acquisition)

Sample screenshots of data strings (converted from byte array to string

A picture containing text, screenshot, font, green

Description automatically generated

1. Alert data store as on demand, It increase the http request.

Proposed System :(Online to Offline)

To redesign the existing system to work in a offline mode and sync data with Cloud whenever internet is available, we need to review the existing architecture and design best suited architecture/solution.

1. Design new process when it change online to offline mode & offline line to online mode.
2. **Site Installation**
   1. **Verify site :** In Device side firstly user is enter site code & then available machine coming from cloud

**Screen 1:**

URL - /api/v1/site/1.1/getmachinebysitecode

Description: above API fetch allocated machine by site code.

URL - /api/v1/site/1.1/getmachinebysitecode

Description: above API validate & fetch the machine & site details from the cloud.

**Screen 2: Factory Settings**

All factory setting process is offline, all parameter store offline & extract from later.

**Screen 3: Site Installation**

Description: Site installation contain sitecode , qcdate ,installation date, amc renewal date.

URL - /api/v1/site/1.1/initiateenroll

1. Update the qcdate,site status,installation date with the respective site & also generate the amc in amcmaster & amclog table.
2. Currently site in INITIATE & amc log generate from the cloud
3. In response we need machine & site currently status

URL - /api/v1/site/1.1/enrollsite

Description: update the site status & generate the token for user.

**Local storage : local storage is main part of the application, Each background process need some parameters for further operation.**

1. **Baby On Bording**

**Screen 4: Admit baby**

URL - /api/v1/site/1.1/enrollsite

**Description:**

**Conditions**

1. Cloud checking the respective machine has any baby admitted or not,if baby admit then send s\_449 status code(baby Is already admitted on same machine)
2. If baby admit successfully then bedoccupation generate automatically with babyid,mrn,admission & discharge date.
3. At the same moment trendsconfig entry also create from the cloud .trends config contain babyid,mrn,interval,alarmconfig
4. Also same time create discharge report table entry for discharge report(later we will update discharge info in this table)

Baby successfully admit in respective machine then cloud send baby details to application,In

Application we are storing baby details for further operation like apgarscore,feed time,alerts etc

**Baby Discharge:**

URL : /api/v1/babymanager/discharge

**Description:**

**Conditions:**

1. find baby with babyid & baby status admit,if baby exists then do further operation otherwise send s\_406(record does not exists)
2. Update the babymaster table with discharge details & discharge status(discharge)
3. Update the machinemaster table with machinestatus = running
4. Fetch the machine master details & check machine type is virtual then update the virtualhallmanagement & bedmaster table from the cloud.
5. update the respective baby bed master details with status is available then send discharge response to application

Baby Onboarding (Admit , Update , Discharge) is very critical & we need to define no of baby’s data store in the system & maintain admit & discharge log from the app.

**Impact from the Cloud System**

1. Hall & bed management
2. Machinemater
3. Site master
4. Dashboard APIS
5. Trends API

**Impact from Device Side**

1. Site Installation
2. Baby Admit,Discharge,update,Draft report
3. AMC Master
4. Trends Config
5. Discharge report
6. Feed master
7. Apgar score
8. Other function including cloud action