

**INTERNSHIP PROJECT REPORT ON**

**INTERNET OF THINGS**

**Project Name:**

**Personal Assistance For Independent Senior Citizens**

**Project ID:**

**SPS\_PRO\_267**

**Submitted By:**

**Bhavin Manani**

**Application Id:**

**SPS\_APL\_20210010038**

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**CHAPTER 1**

**Introduction**

* 1. **Overview**

There are many different categories of patients in today’s world which comes under some category of patients which live independently and are alone at home and can’t remember time at which they have to take their medicine and also are the patient which stay with family but their family members can stay with them whole day and make them remember to take medicine at time, this are some of the category of patient which can’t remember to take medicine at time also there can be many more category like this with there separate reasons to forget that it’s time to take there medicine.

In all this scenario one thing common is that patient are forgetting to take there respected medicines on respected time, so why don’t we make one app that will make schedule of time at which patient should take medicine and will remind them to take medicine at respected time. This can solve all previous scenarios where patients were forgetting to take medicine on time.

Also, the app can send notifications quickly in case of emergency and easily by allowing user not to write text but to speak the message and directly the message will be typed and can send alert to patient family member or doctor.

The category of patients involve all human beings-teachers, students, businessmen, housewives,

children and also all of us have a busy hectic schedule. Today’s life is full of responsibilities and

stress. So people are prone to diseases of different types and it is our duty to make ourselves stay

fit and healthy. If the patient stays at home then he or she might get someone to look after him/her

but when one is not at home, is out of the city or state away from home then it is hard for the

family members to call them and remind them their dosage timings every time.

In our developing and technology dependent life we totally rely on gadgets especially smart

phones. Today everyone has a smart phone. With this we get an opportunity to use technology in

a better way so that it can be made useful to us. And it plays an important part in our daily life

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which will allow them to set alarm for multiple medicines at different time intervals. The

notification system will send a notification after setting an alarm. The user can activate or

deactivate the notification accordingly. It will be sent as email or message as selected by the user.

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**1.2 Purpose**

The Purpose of the system is to continuously keep the track regarding medicines to be taken at a particular time and which is to be taken at that specific time also the app will provide an alert box which on click, will ask to select contact and would send notification to the respected contact which is been selected and will send notification alert to selected contact also the app has a feature it will store phone number of doctor and one family member which in emergency would directly send respected message to the selected one which user has selected so that it could immediately send message at the time of emergency, the app also provide feature of voice text so that user does not have to type anything through voice command he/she could send message directly. In the end the app provides the feature of monitoring patient health with the help of sensor which shows body temperature and pulse rate values of the patient when it will increase a certain level the app will directly send alert to doctor to check patient.

**CHAPTER 2**

**Literature Survey**

  **2.1 Existing Problem**

* The existing systems does not provide the feature of monitoring the health of patient.
* Many systems have been made on this until now but they do not provide the feature of sending alert in case of emergency fastly as per our system.

**2.2 Proposed Solution**

* The Proposed system will provide the feature of monitoring the health of patient like body temperature and pulse rate with the help of sensors and IBM cloud platform to show the data in any device and from anywhere.
* The system provides a feature to store doctor number and one family member number in the app which will be stored in database and can be fetch when user need to send alert in case of emergency to anyone.

**CHAPTER 3**

**Theoretical Analysis**

**3.1 Block Diagram**

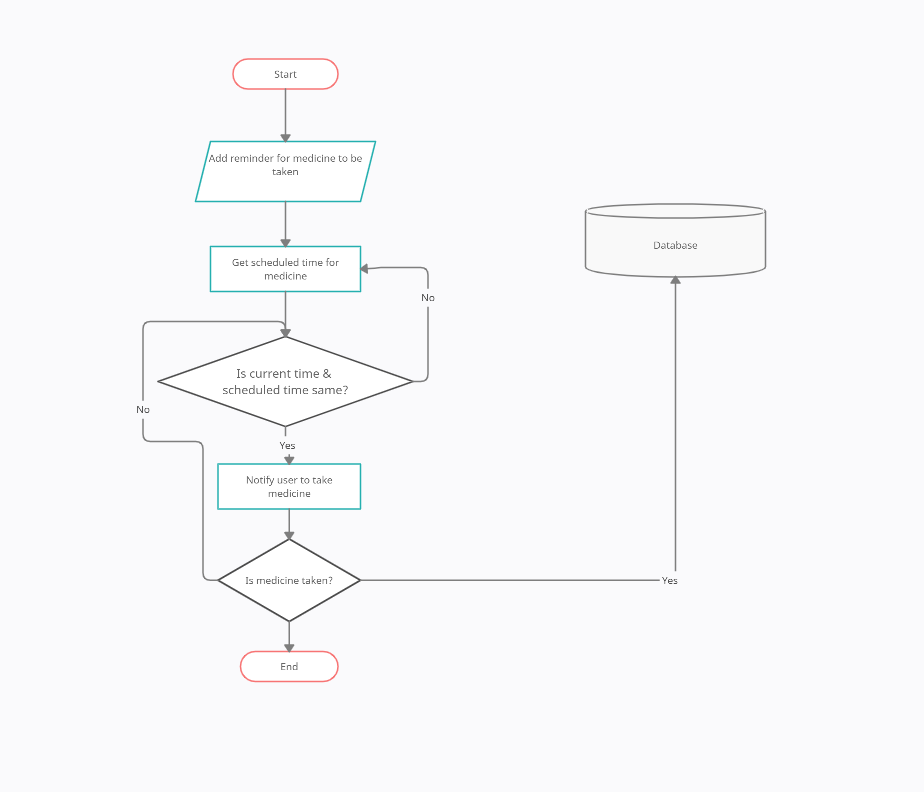


Figure 3.1 Setting Medicine Reminder

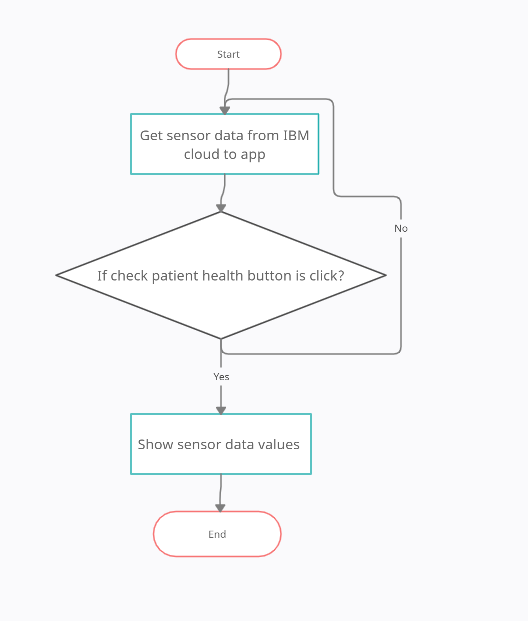
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Figure 3.2 Monitor Health Chart

**3.2** **Hardware Designing**

**IR Temperature Sensor:**

It will be used to sense body temperature of patient which comes in wearable or fitness tracker app.

**Pulse Sensor:**

It will be used to get the pulse rate of the patient.

**3.3 Software Designing**

**Node-Red:**

Node-RED is a programming tool for wiring together hardware devices, APIs and online services in new and interesting ways. It provides a browser-based editor that makes it easy to wire together flows using the wide range of nodes in the palette that can be deployed to its runtime in a single-click.

**MIT App Inventor:**

MIT App Inventor is an intuitive, visual programming environment that allows everyone even children to build fully functional apps for smartphones and tablets. Those new to MIT App Inventor can have a simple first app up and running in less than 30 minutes. And what's more, our blocks-based tool facilitates the creation of complex, high-impact apps in significantly less time than traditional programming environments. The MIT App Inventor project seeks to democratize software development by empowering all people, especially young people, to move from technology consumption to technology creation.

**IBM Cloud:**

IBM Cloud is online combined service like PaaS and IaaS, it is used at backend for sending real time values and storing the values at node-red cloudant database. For creating virtual devices IBM cloud is used.

**Fast2SMS:**

For sending text messages regarding the moisture content is too low than a specified value Fast2SMS provides a dev API service to send a quick message to user.

**Chapter 4**

**Experimental Investigations**

1.Start With Creating IBM Account

2.Create Cloud Foundry apps

* Node-red Web app

3.Create Cloud Foundry Services

* Node-red app services

4.Create Internet of Things platform

* For Create Virtual Devices

5.Create Node-red Flow diagram

* Create a flow diagram and connect the Virtual Devices

6.Develop the python code

* Develop python in Python IDLE
* Connect The code with Device using IoT Platform's Configuration like Device ID ,DeviceType,Organization,Authentication Method and Authentication Token.
* Send Data to Node-Red Flow Diagram

7.Create Web Application Using Node-Red Application Using Different Nodes

* Design UI to Display the medicine to be taken at specific time.
* Send Alert to doctor or family member in case of emergency.
* Display the health of patient in nodered.

8.Develop HTTP Request For Sending SMS alert in Fast2SMS Services.Copy that link into Node-red Application

9.Develop Mobile Application Using MIT App Inventor.

10.For creating speech to text service refer:

<https://cloud.ibm.com/docs/speech-to-text?topic=speech-to-text-gettingStarted>

**Chapter 5**

**Flowchart**

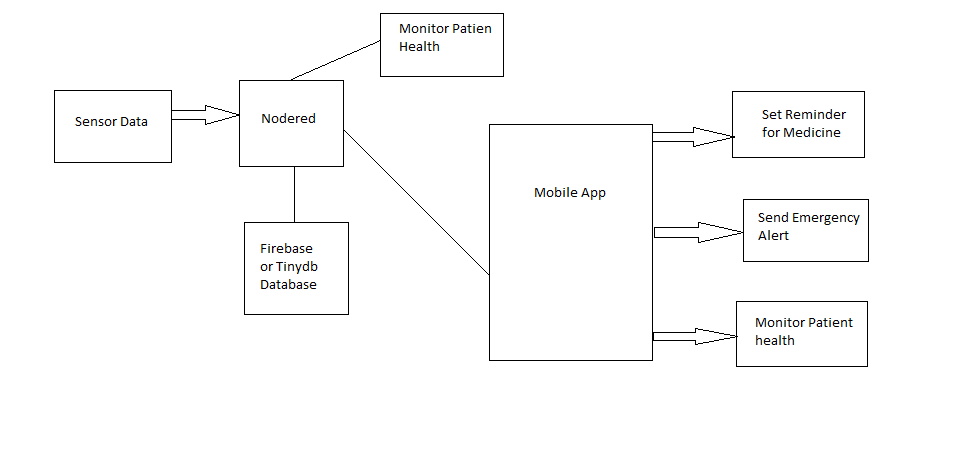


Figure 5.1 Project Flow Diagram

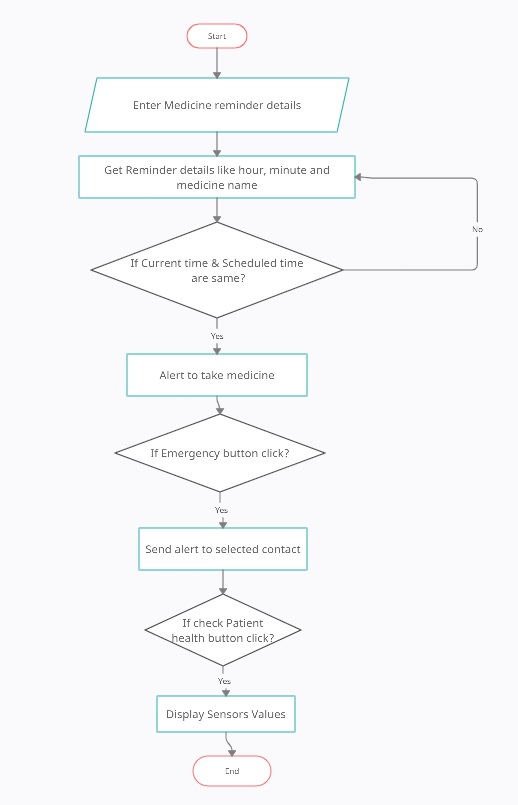


Figure 5.2 Flowchart

**Chapter 6**

**Result**

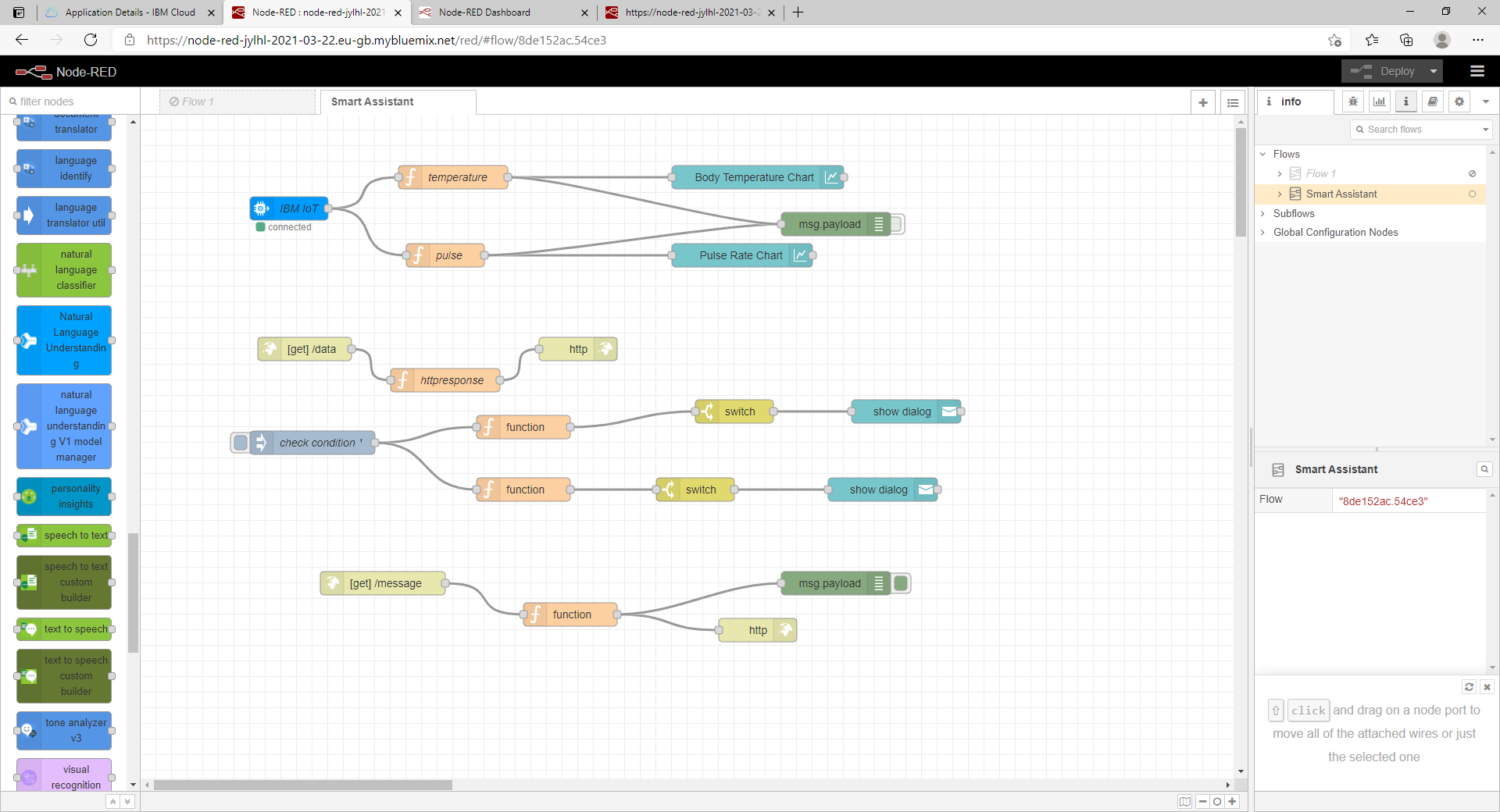


Figure 6.1 Data Flow from Node Red

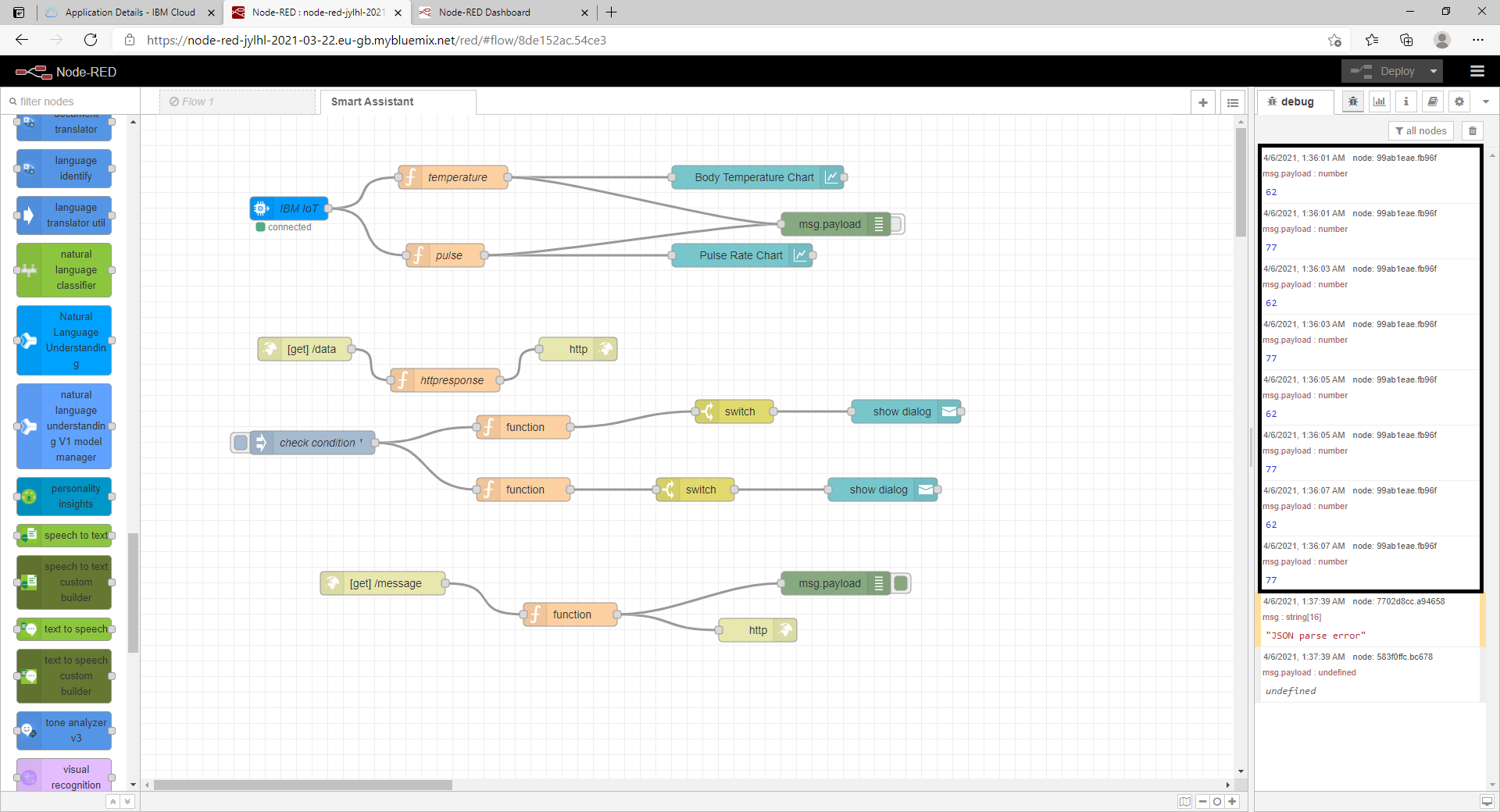


Figure 6.2 Sensor Data

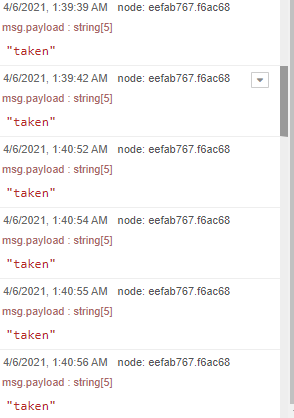


Figure 6.3 Command when medicine taken



Figure 6.4 Web call when medicine taken button click

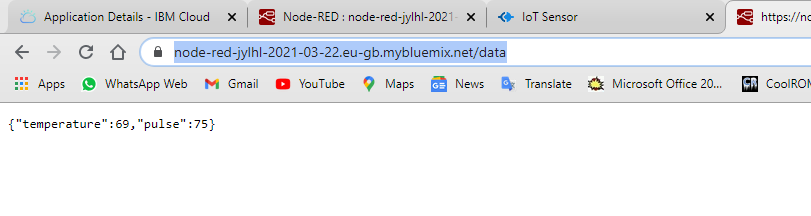


Figure 6.5 Node Red Sensor Data

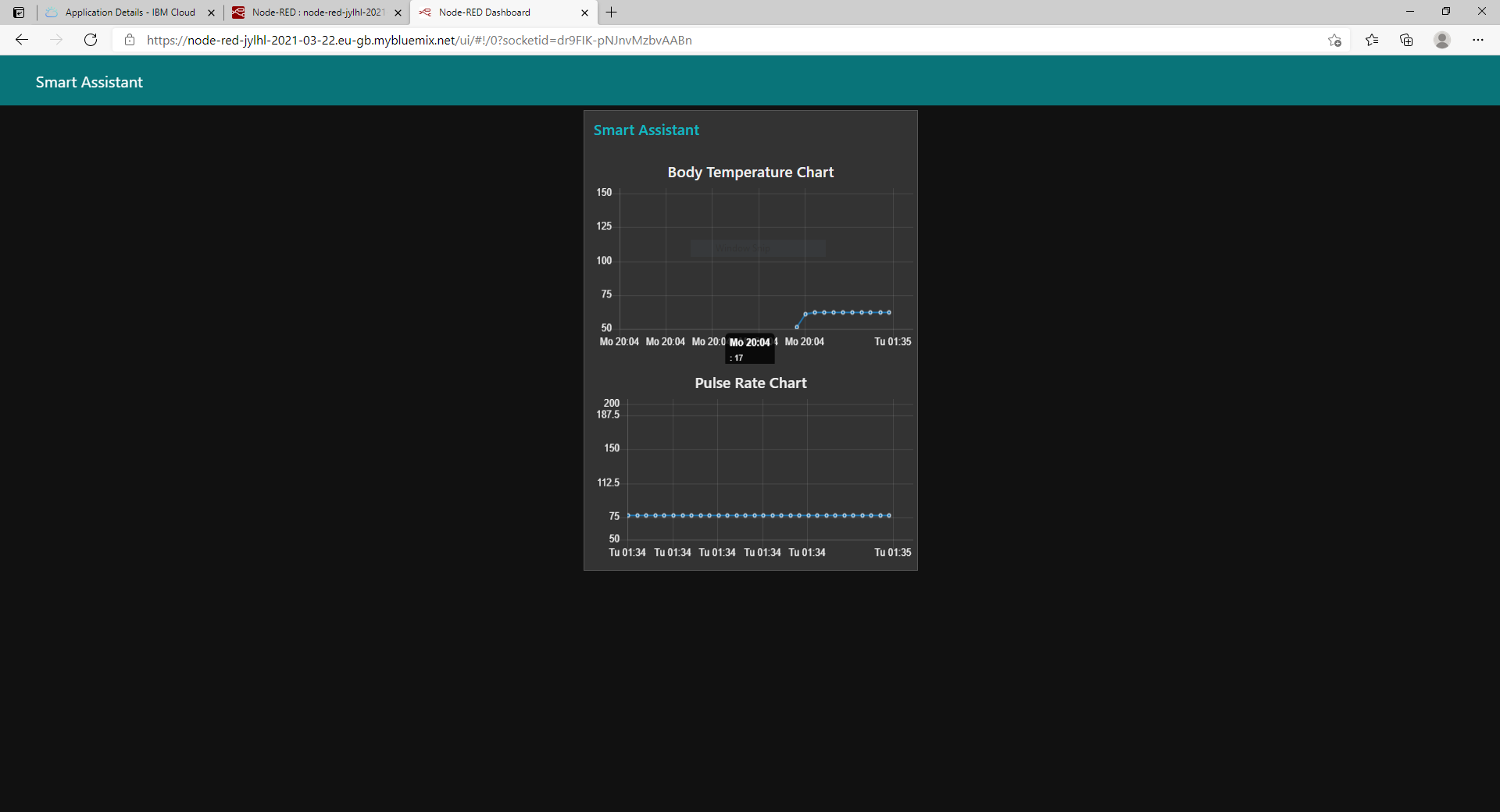
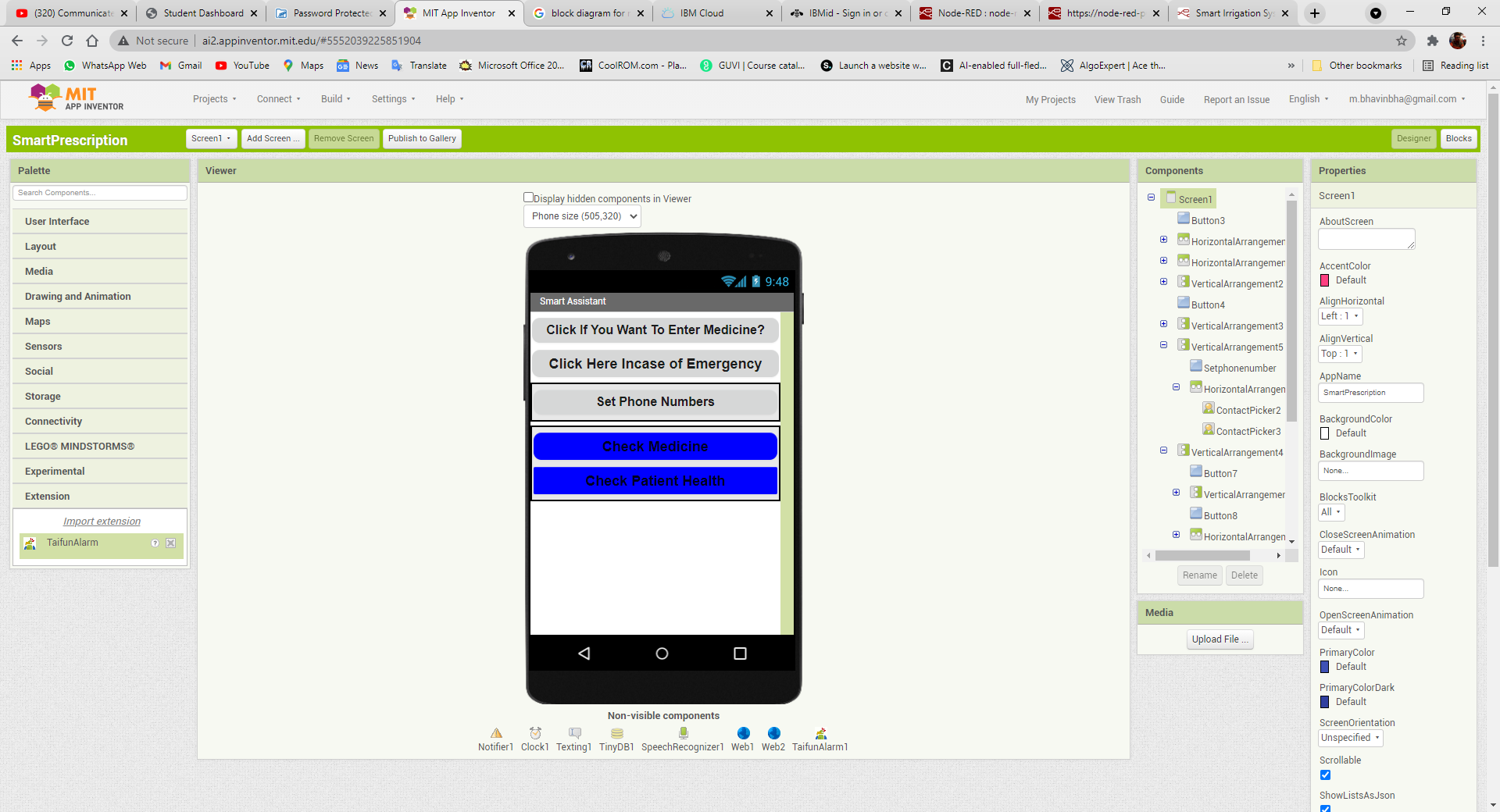


Figure 6.6 Node Red UI

Figure 6.7 App Main Screen

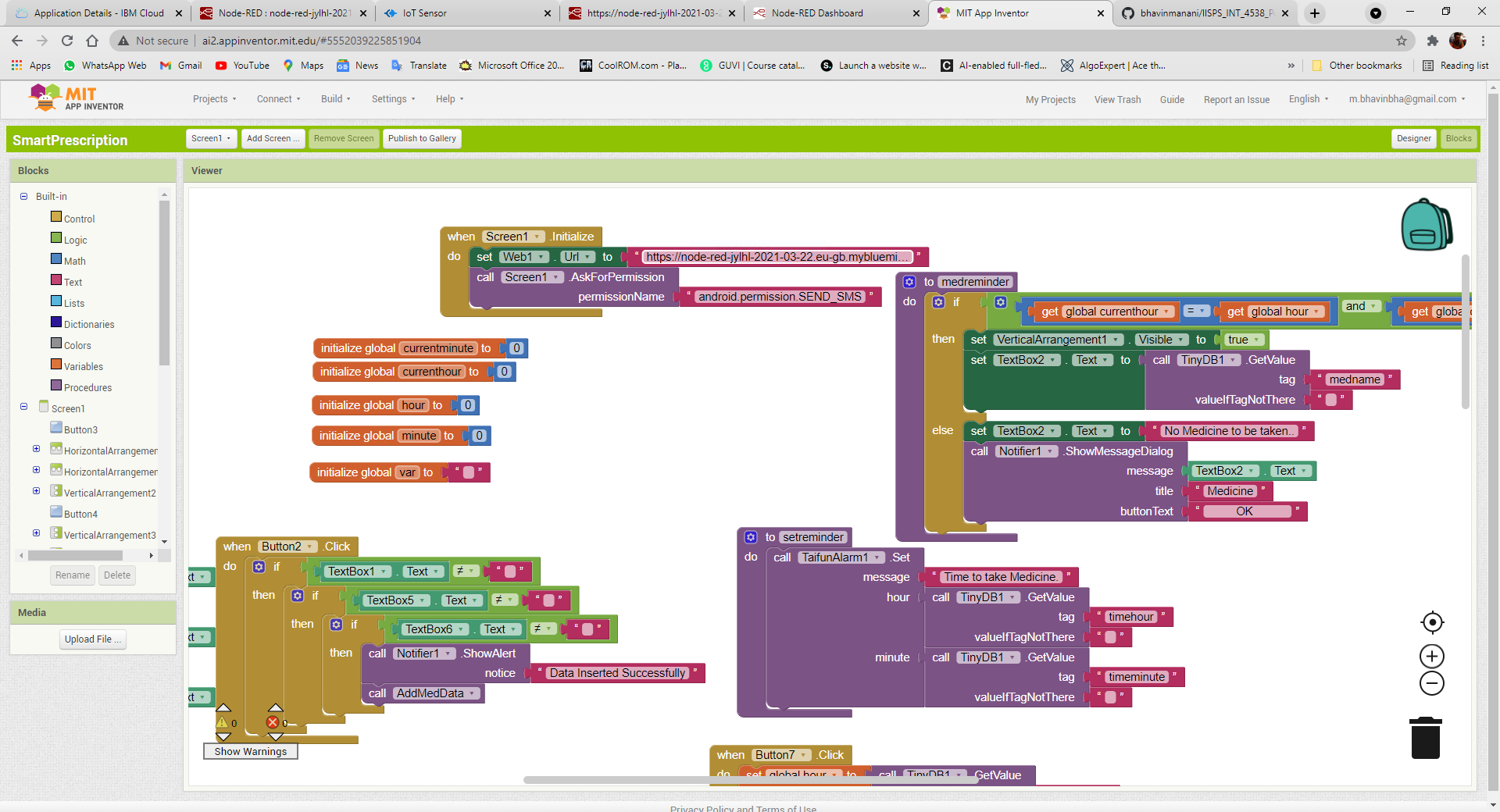


Figure 6.8 App code

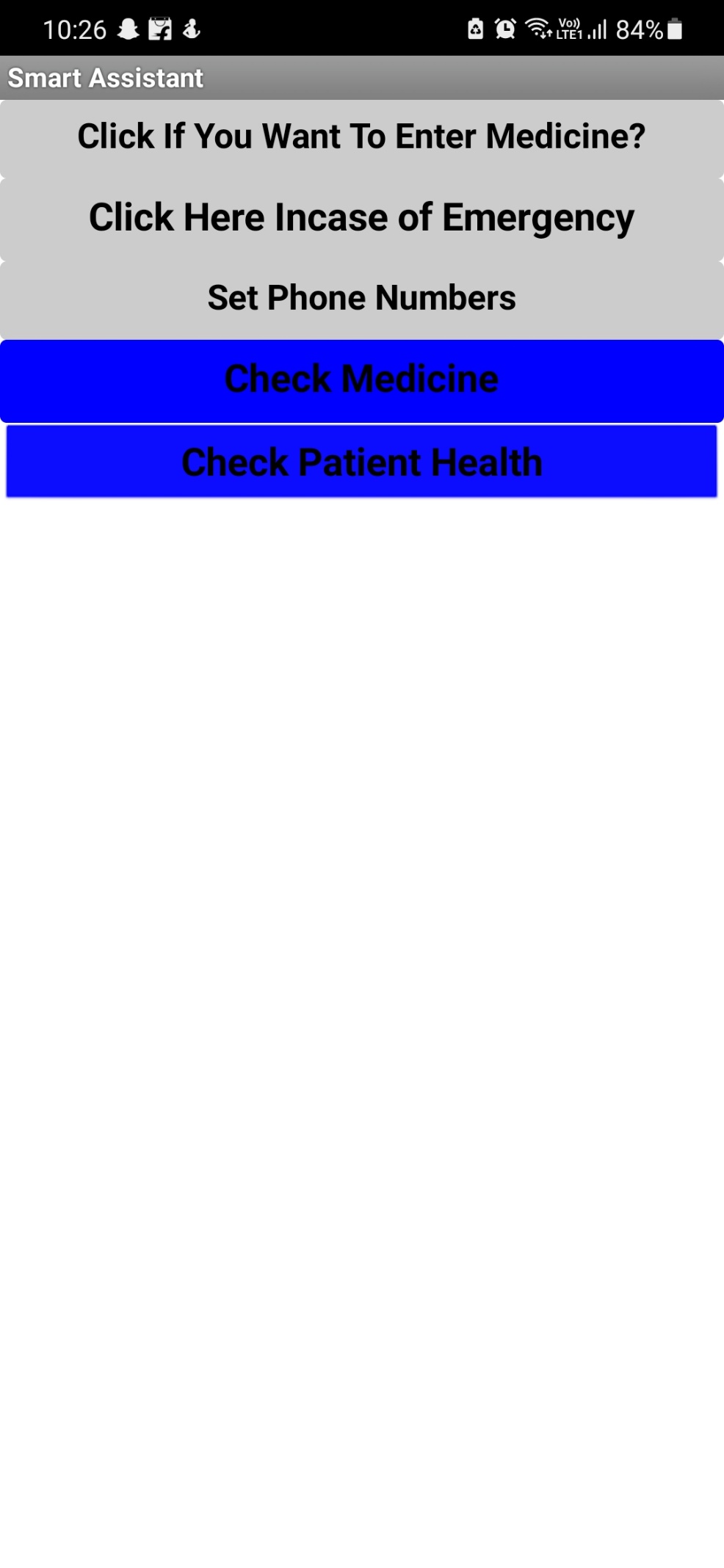


Figure 6.9 App Main UI

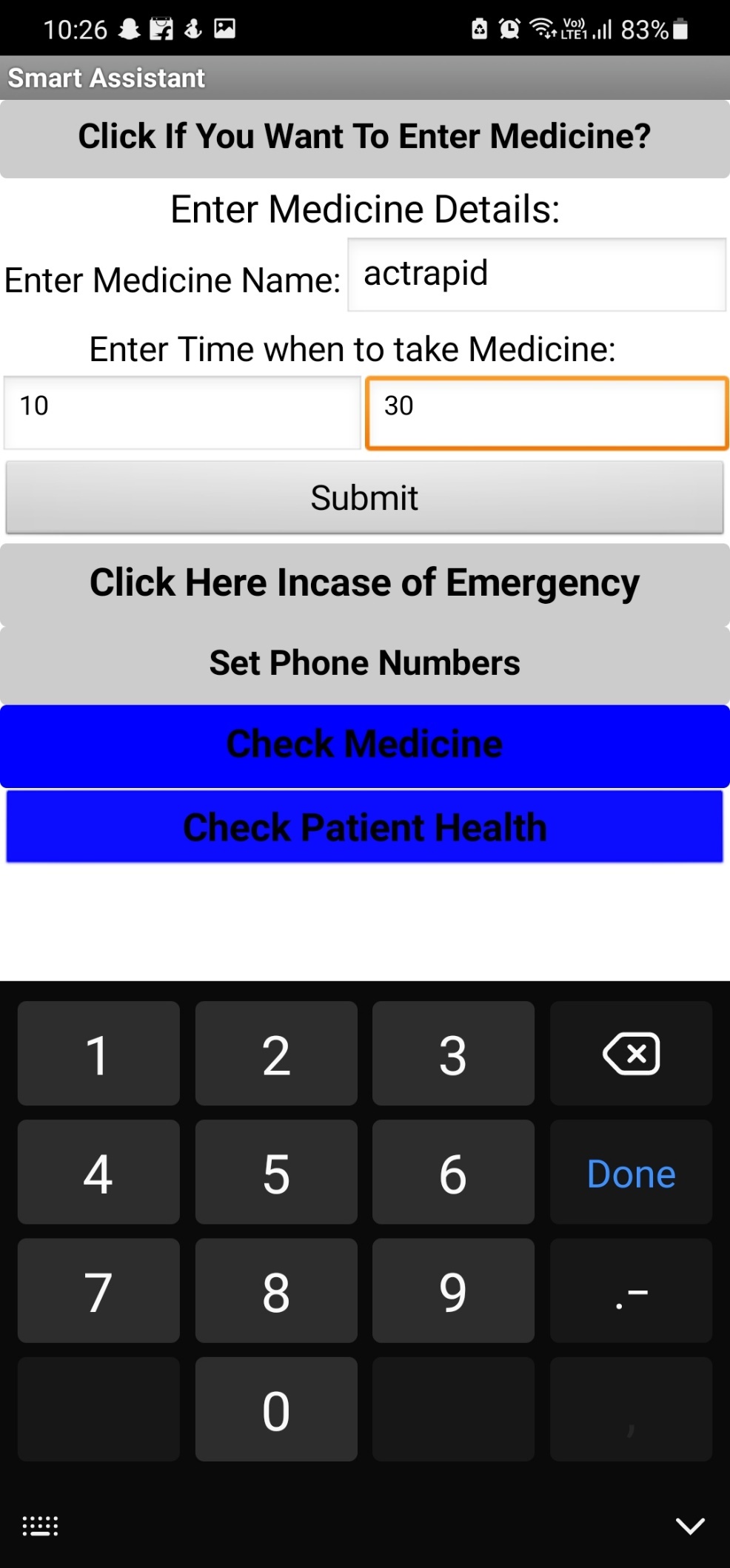


Figure 6.10 Setting medicine reminder

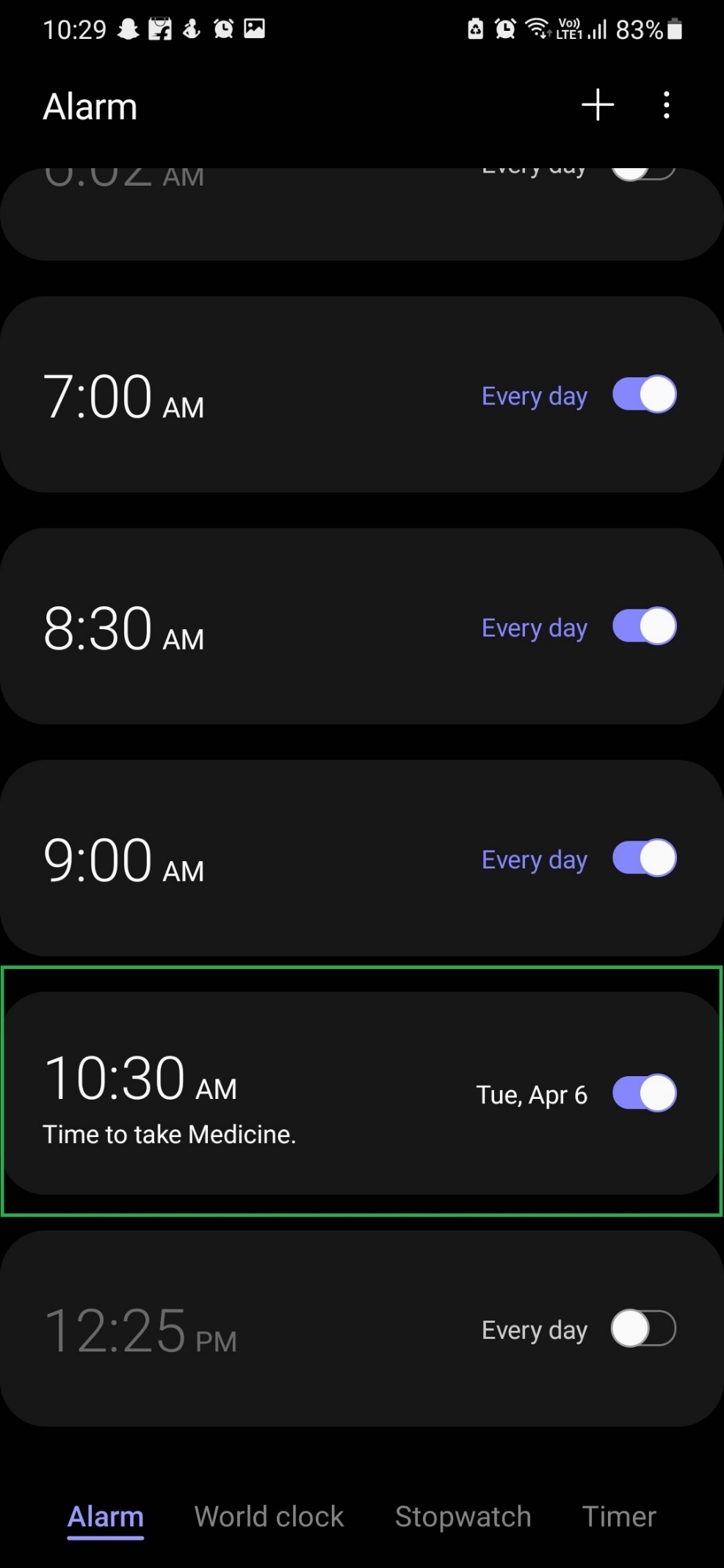


Figure 6.11 Alarm Set

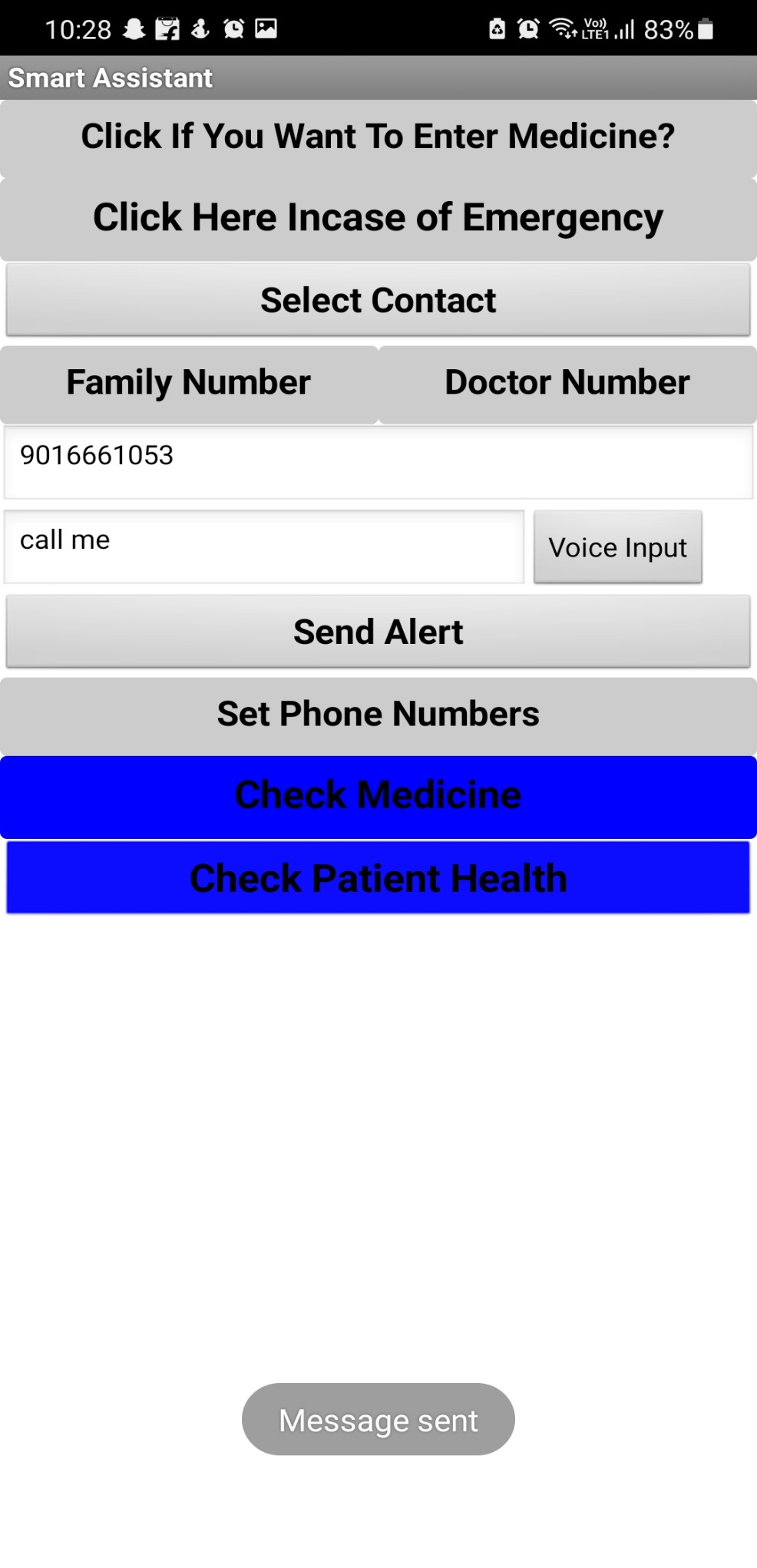


Figure 6.12 Sending Emergency Message

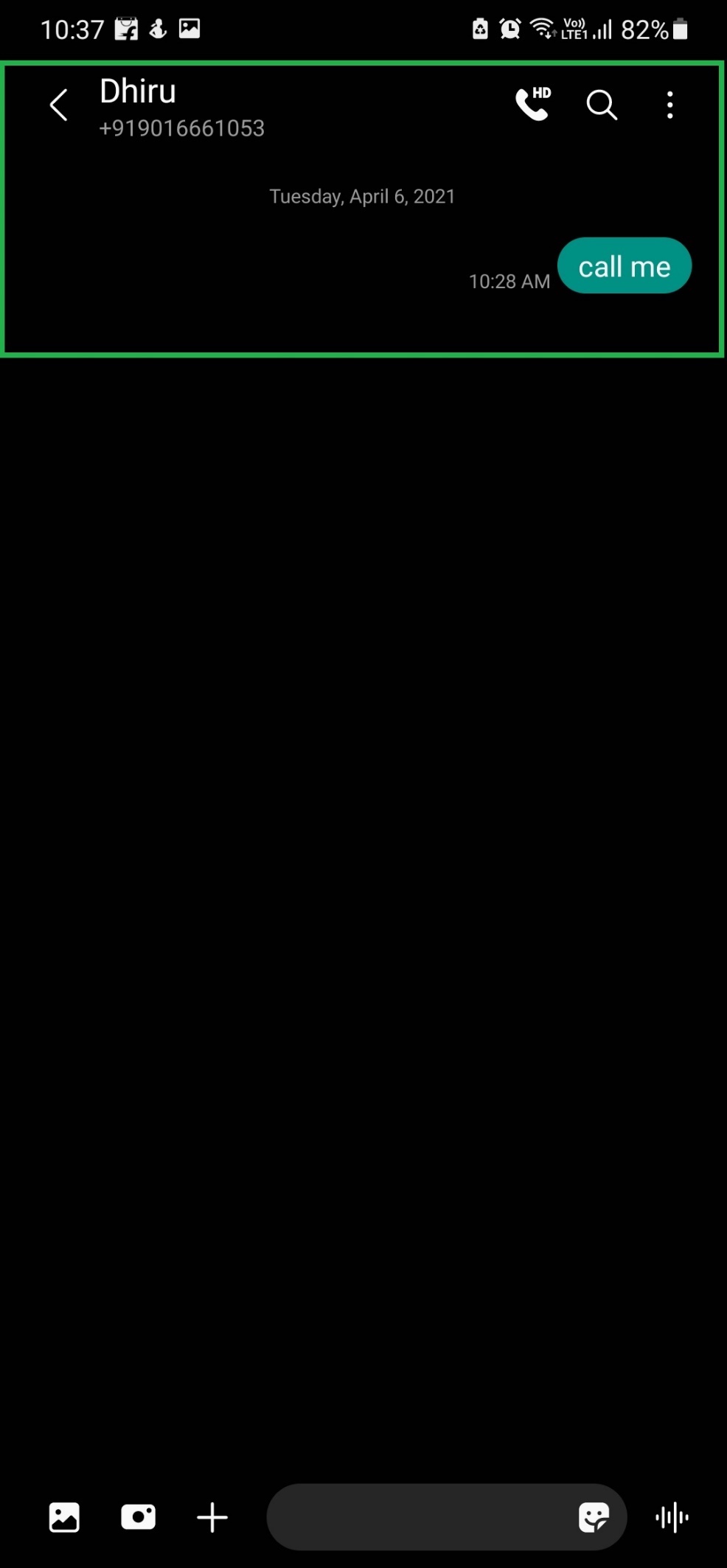


Figure 6.13 Emergency Message Send

**Chapter 7**

**Advantages and Disadvantages**

**7.1 Advantages**

* Easy to schedule the medicine name and timing.
* Easy to configure the times.
* Simple rescheduling in event of a missed dose, etc.
* Easy to send emergency alert to doctor or family member.
* Easy to keep track of patient health.

**7.2 Disadvantages**

* Every time to check medicine to be taken button has to be click.
* Can set reminder for one day only.

**Chapter 8**

**Applications**

* The app provides user the flexibility to add reminder for medicines and thus they don’t need to remind themselves for taking medicine as the app do so.
* The app provides facility to track patient health and also helps patient to send emergency alert to doctor or family member by taking no time.

**Chapter 9**

**Conclusion**

At the end the app developed is able to track medicine to be taken at specific time and also multiple alarm can be set, only the disadvantage is that user has to check which medicine he/she has to take at specific time by opening the app. The app is also able to send alert notification quickly and can monitor patient health.

**Chapter 10**

**Future Scope**

* In future, we are willing to add feature for reminder so that patient need not have to open the app to see which medicine he/she has to take, the reminder will itself send alert for displaying which medicine user has to take.
* Also in future the app will be able to monitor the time at which patient has taken a particular medicine.

**Chapter 11**

**Bibliography**

* https://nodered.org/
* https://appinventor.mit.edu/explore/about-us.html
* http://watson-iot-sensor-simulator.mybluemix.net/

**Chapter 12**

**Appendix**

**12.1 Source Code**

**Mit App Inventor Code:**

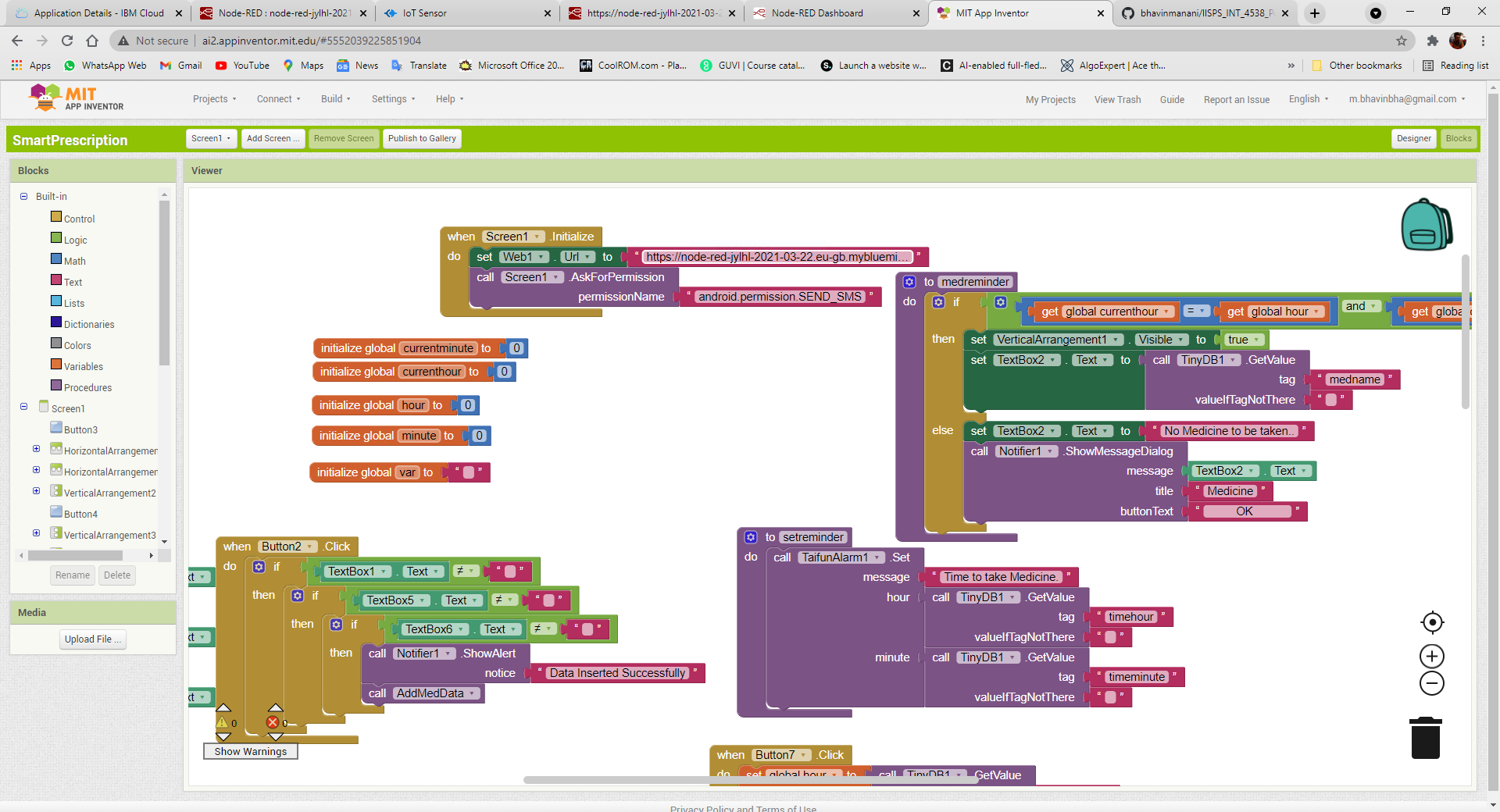


Figure 12.1 Initializing global elements

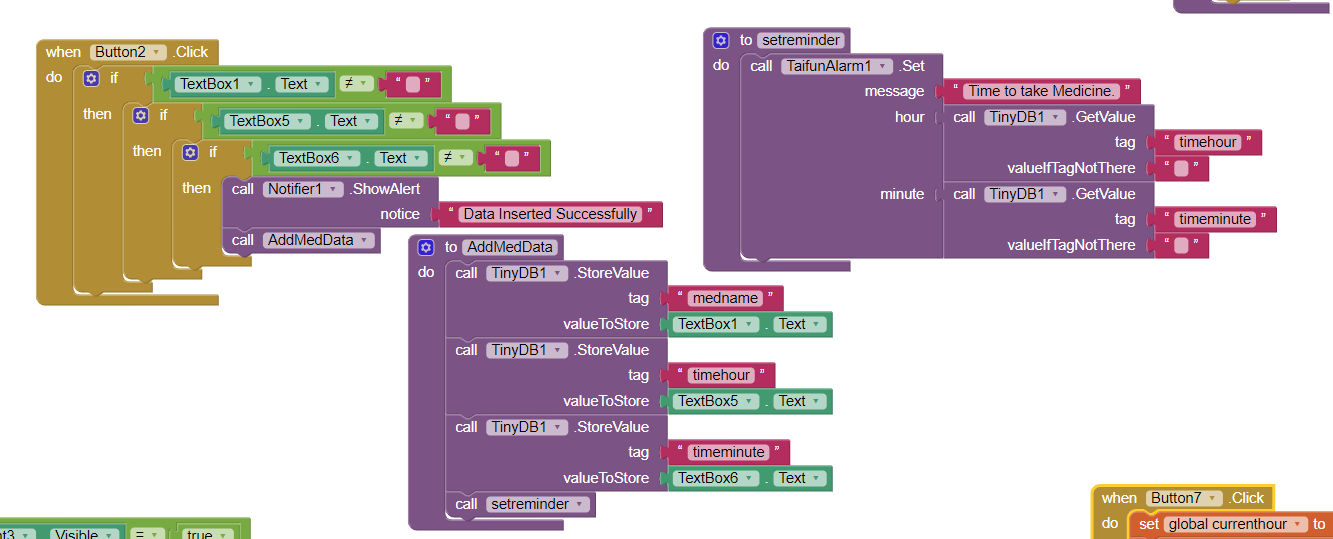


Figure 12.2 Setting reminder

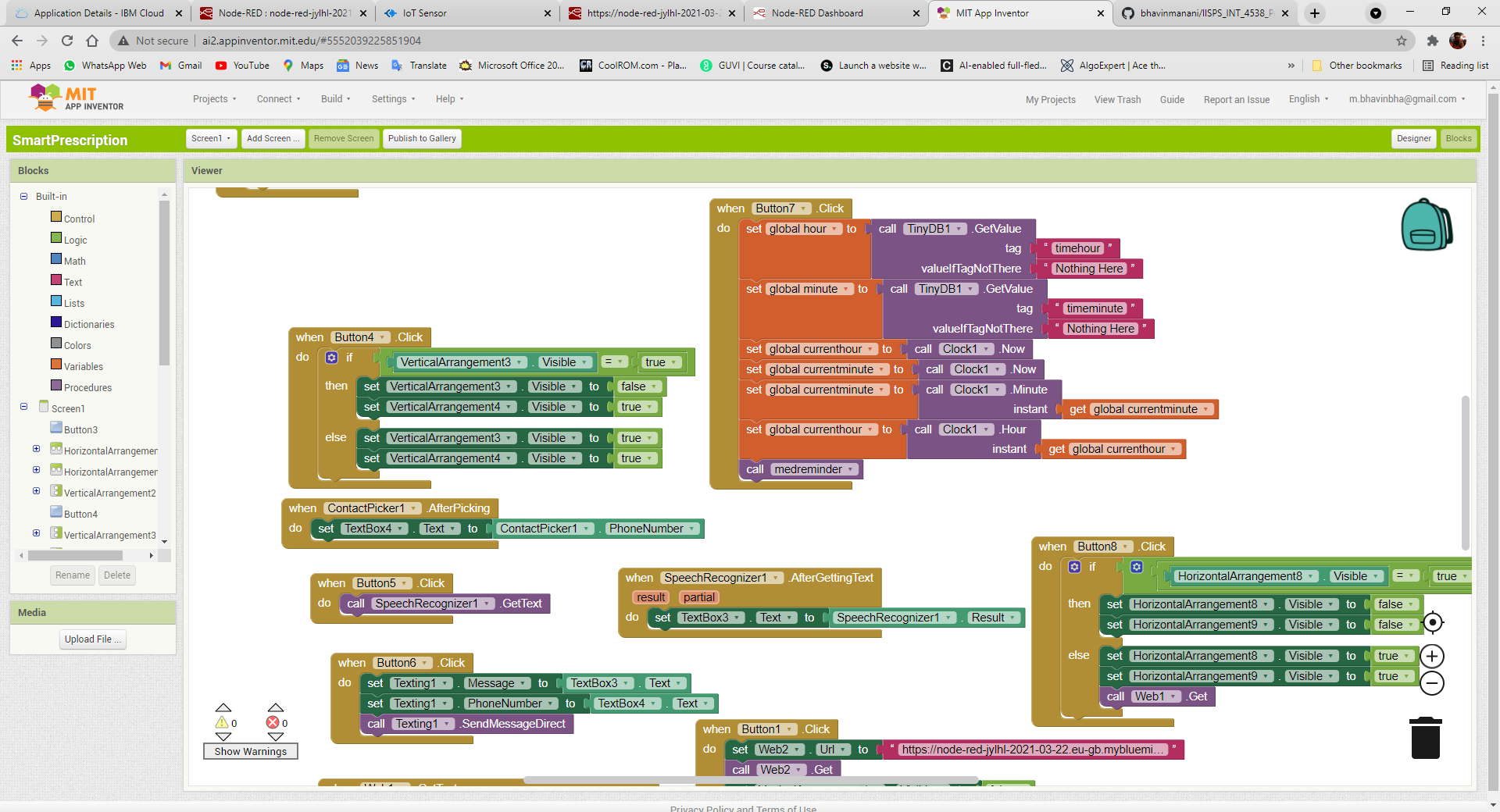


Figure 12.3 Make hidden ui visible

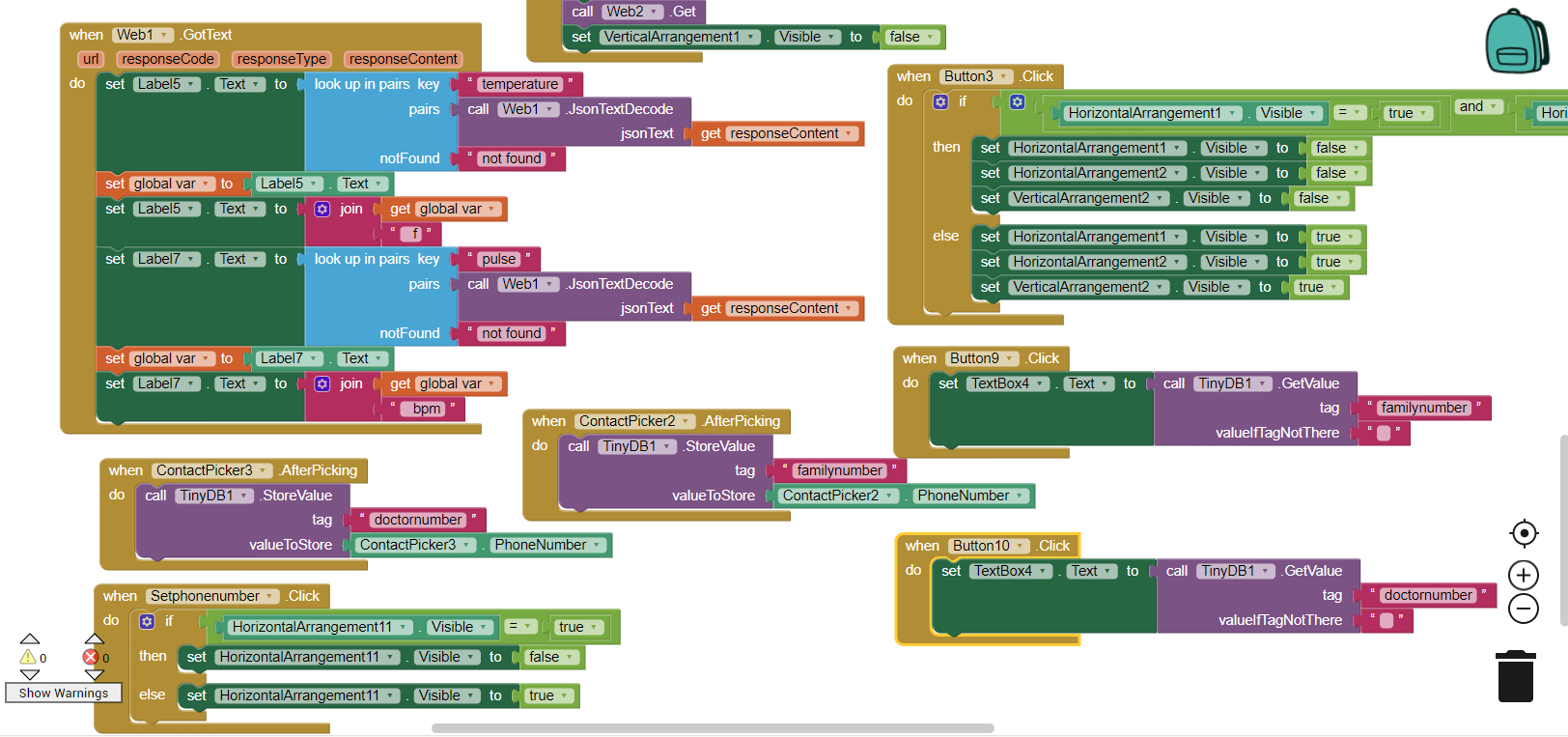


Figure 12.4 working of app

**Node Red:**

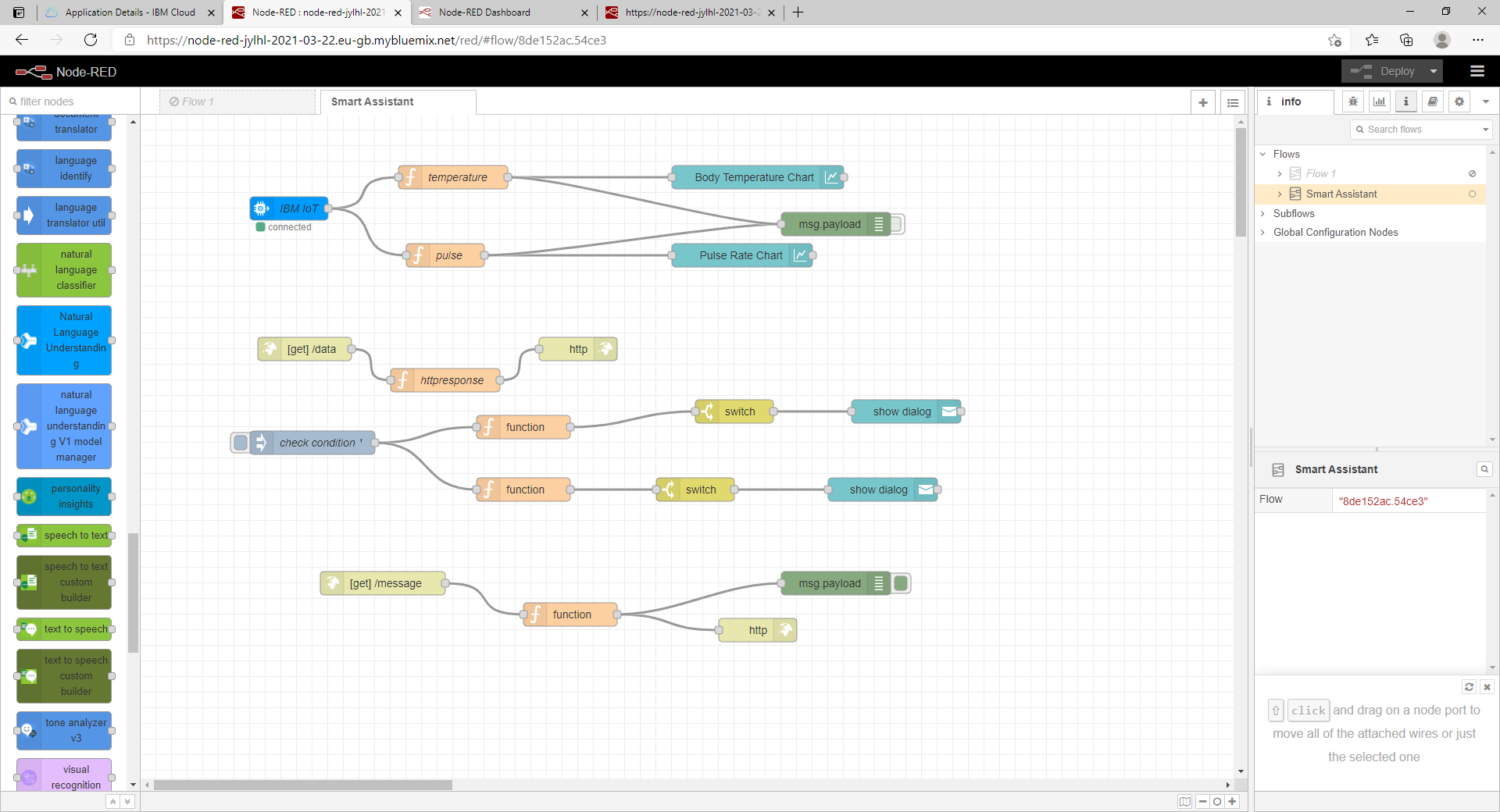


Figure 12.5 Node Red Flow

Organization ID: 71luid

Device Type: rsip

Device ID: 1001

Authentication Method: use-token-auth

Authentication Token: 1234567890

api key: a-71luid-oclawyhc5q

auth token: SWMmsKpD97x(RWC)5Y

**12.2 UI Output Screenshot**

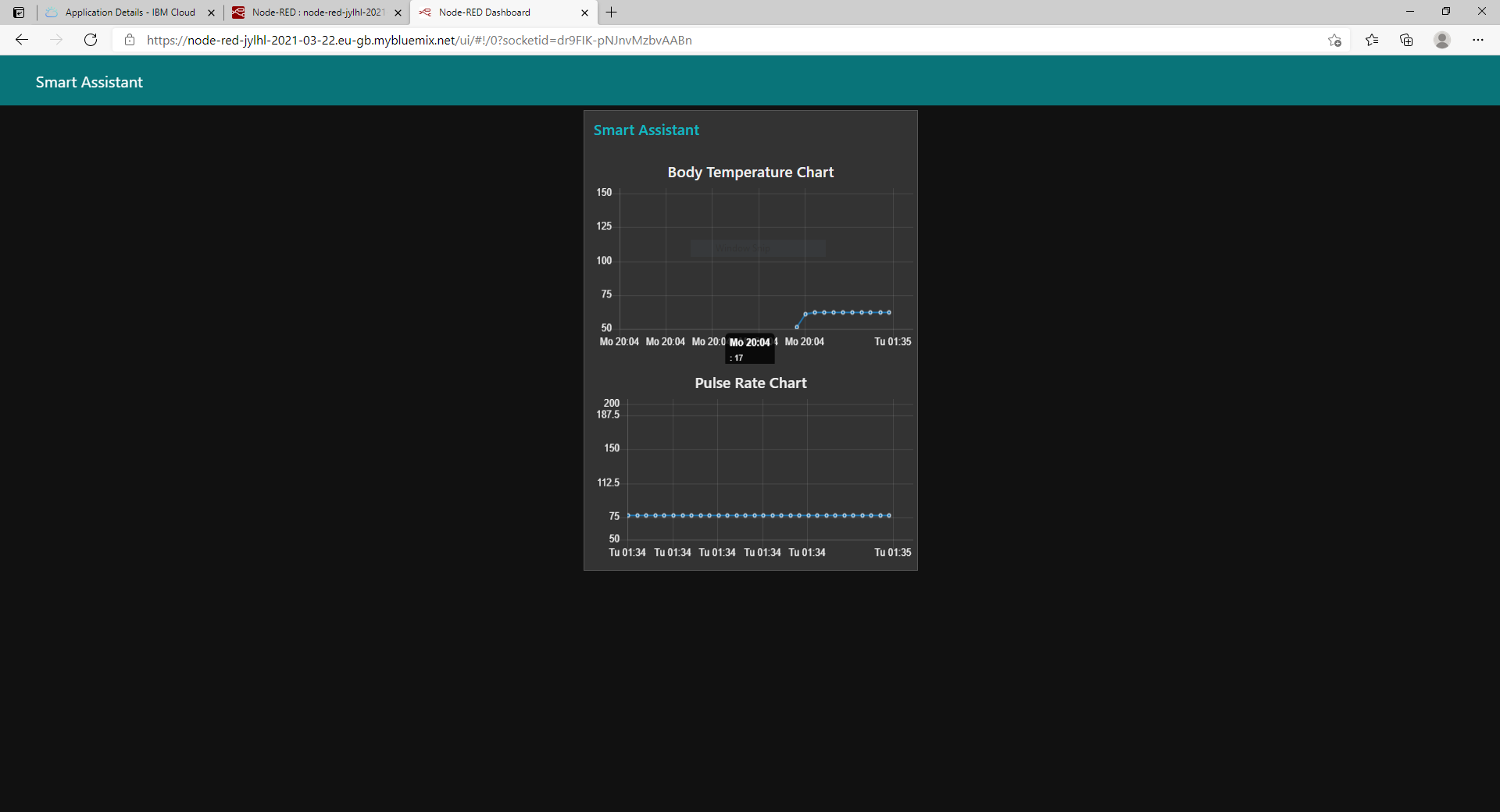


Figure 12.6 Node Red UI Screen

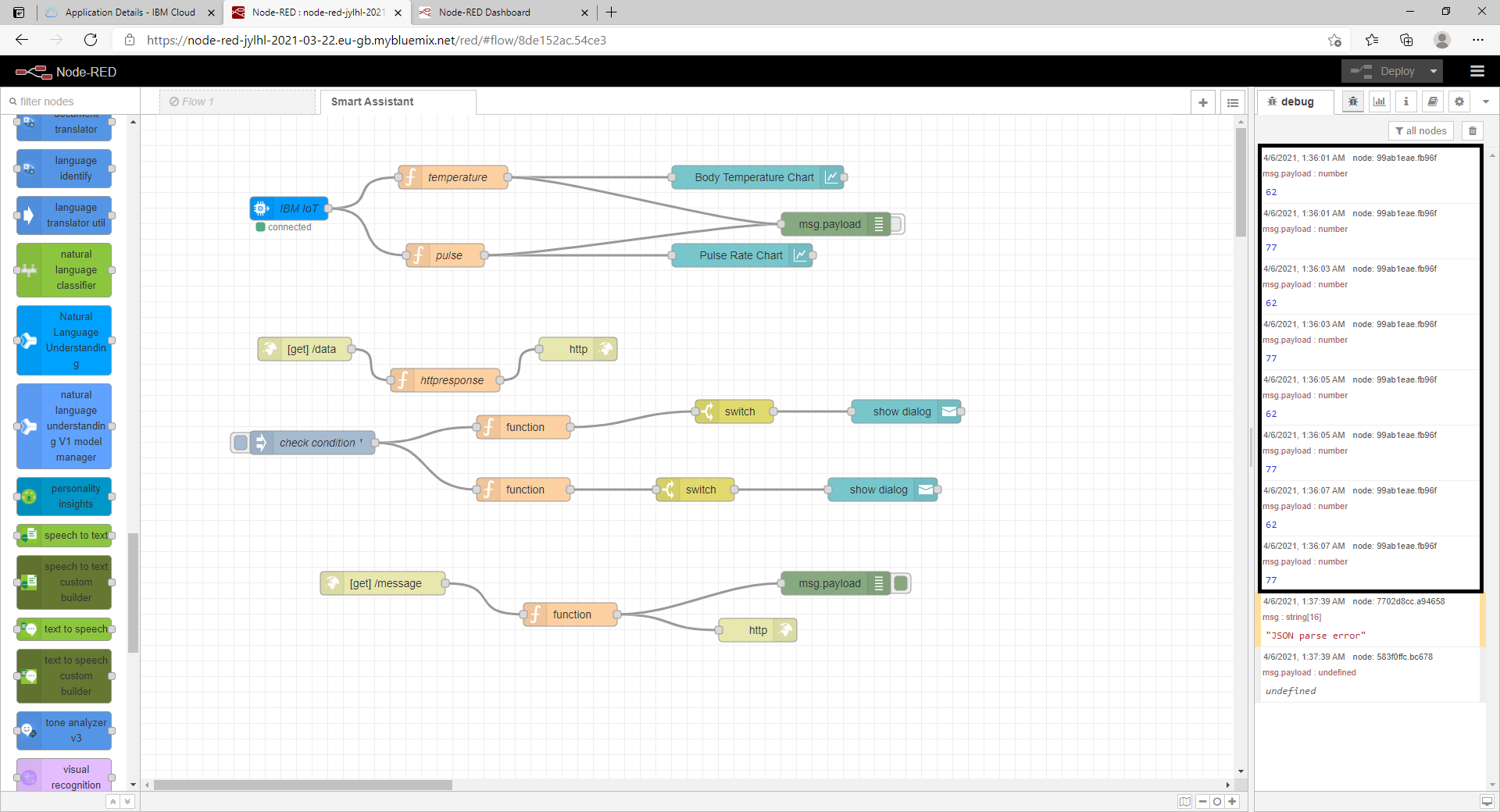


Figure 12.7 Sensors Data

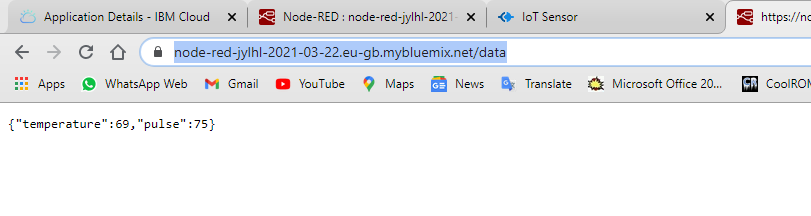


Figure 12.8 http data to communicate with mobile app

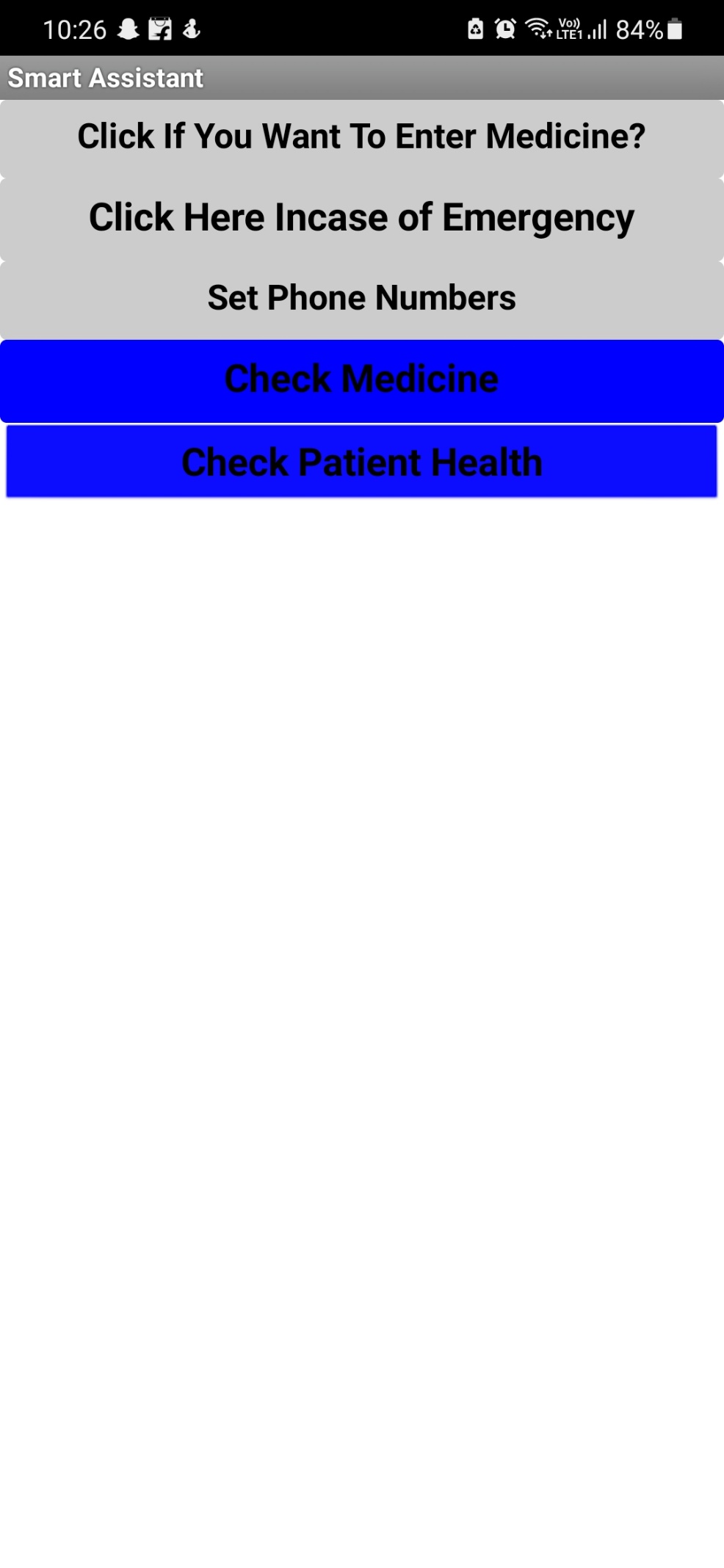


Figure 12.9 App Main Screen

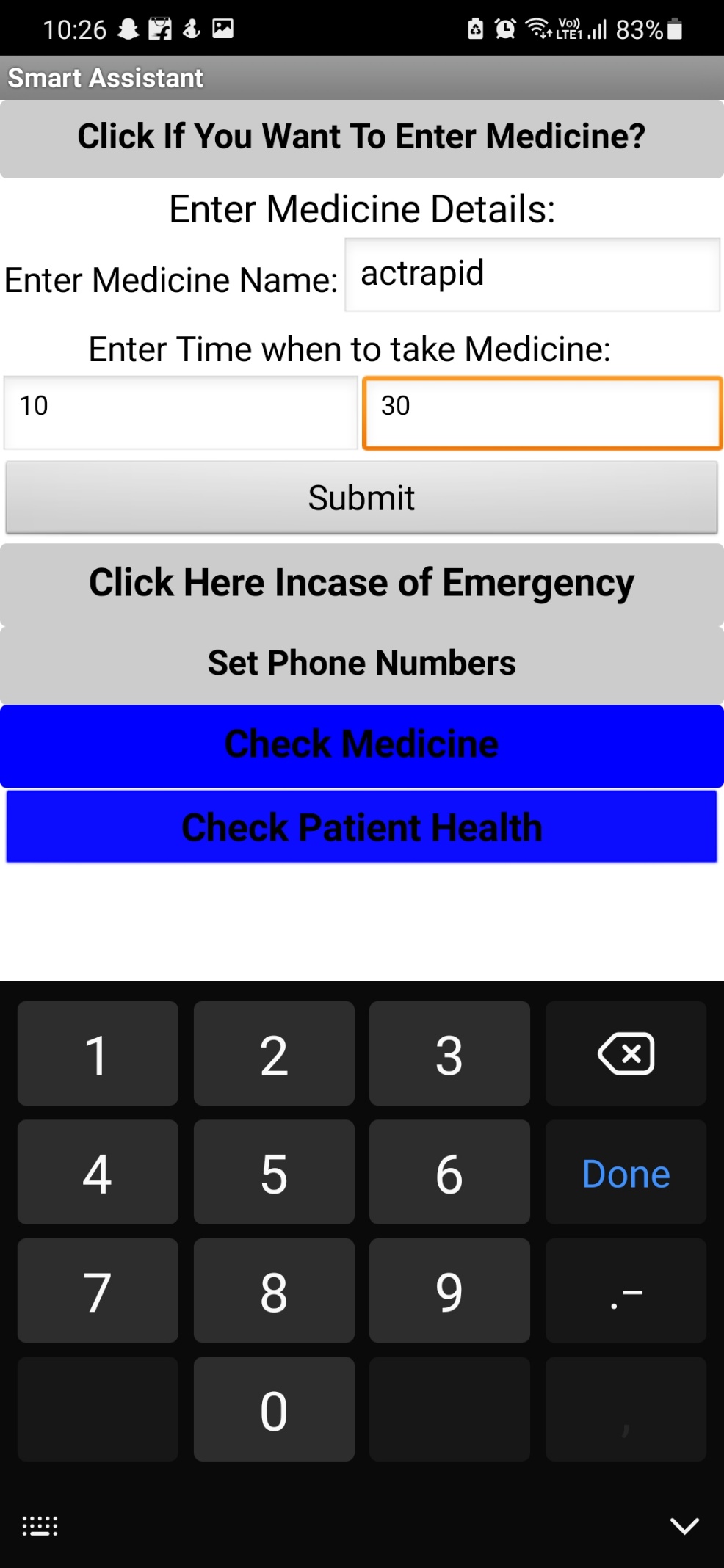


Figure 12.10 Set Reminder

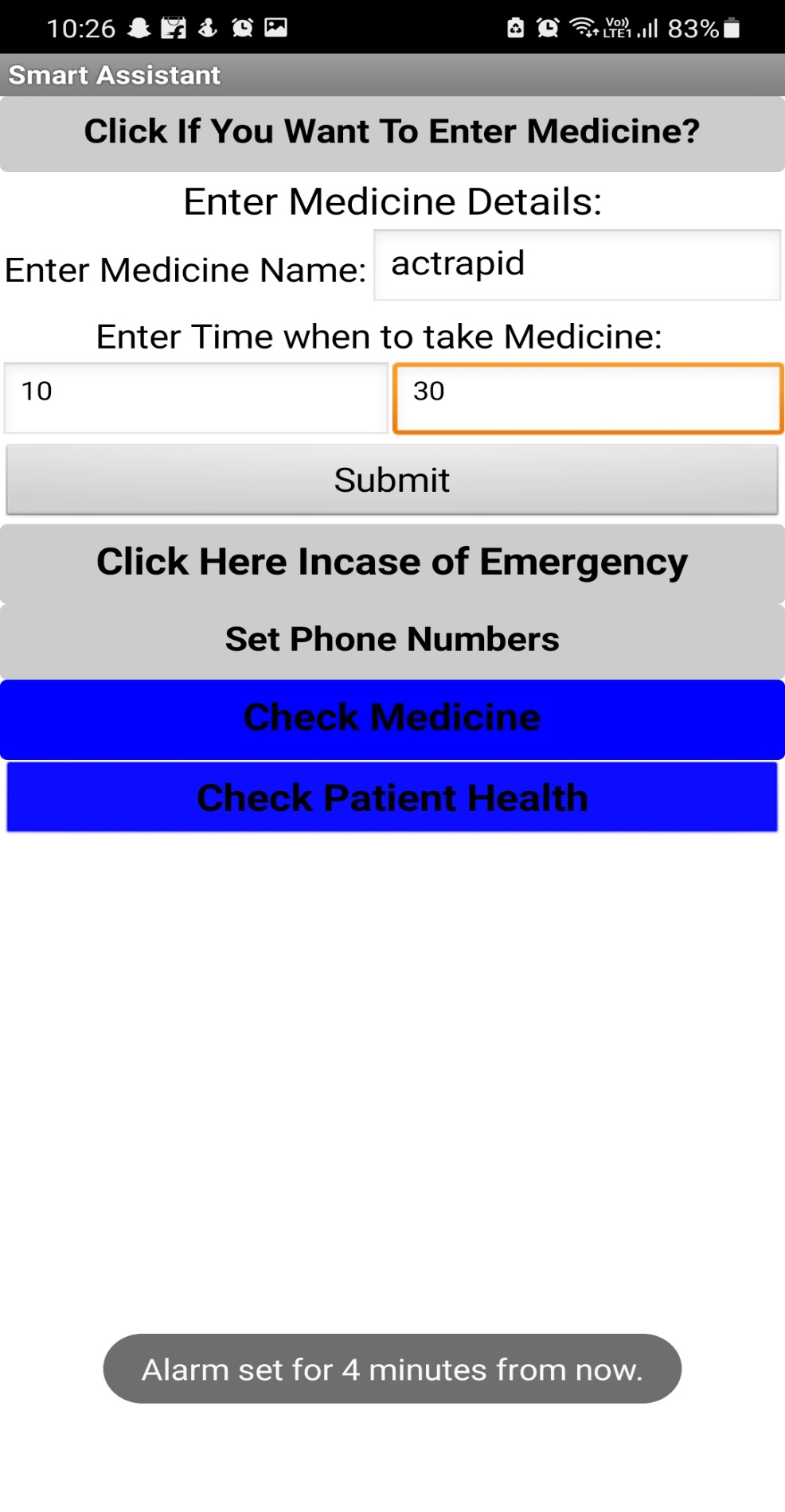


Figure 12.11 Reminder set message

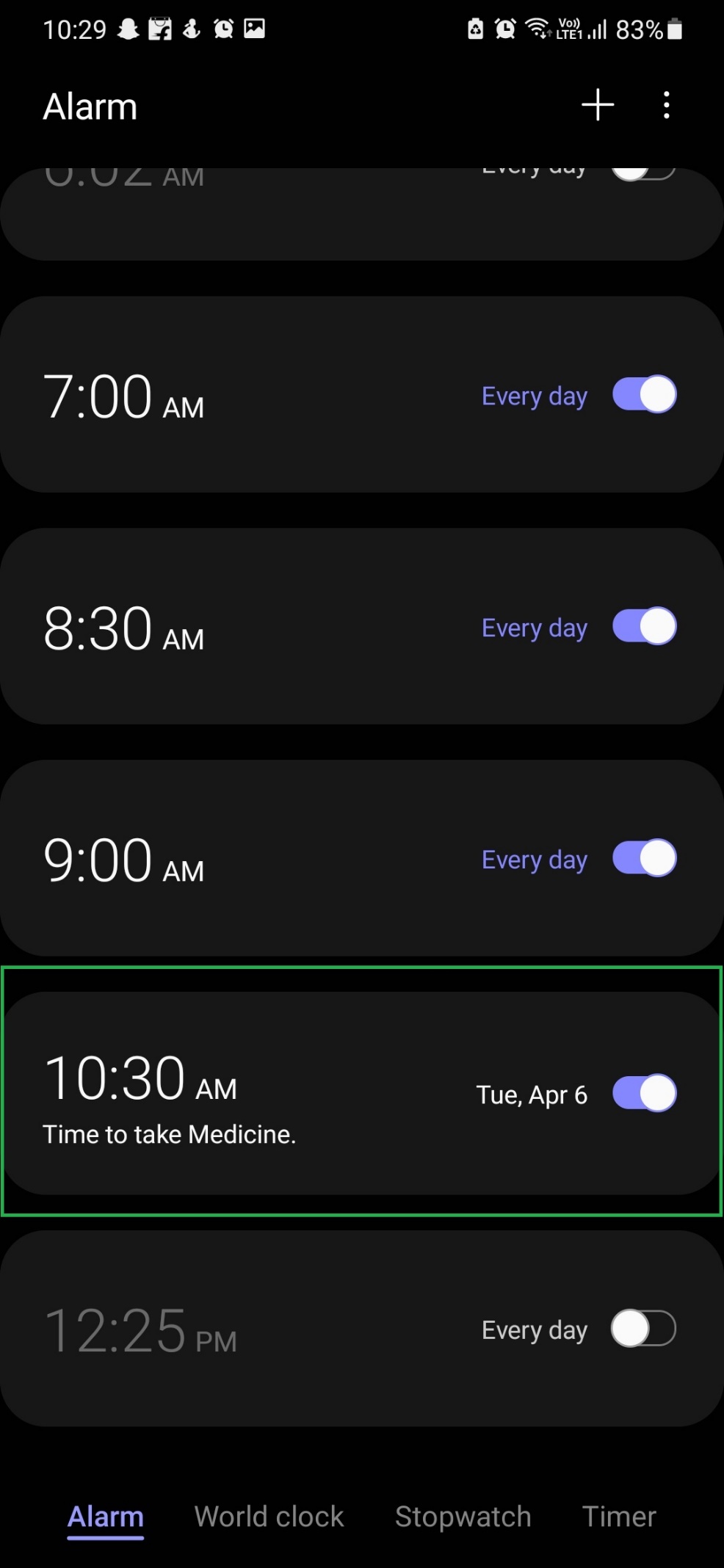


Figure 12.12 Alarm Set

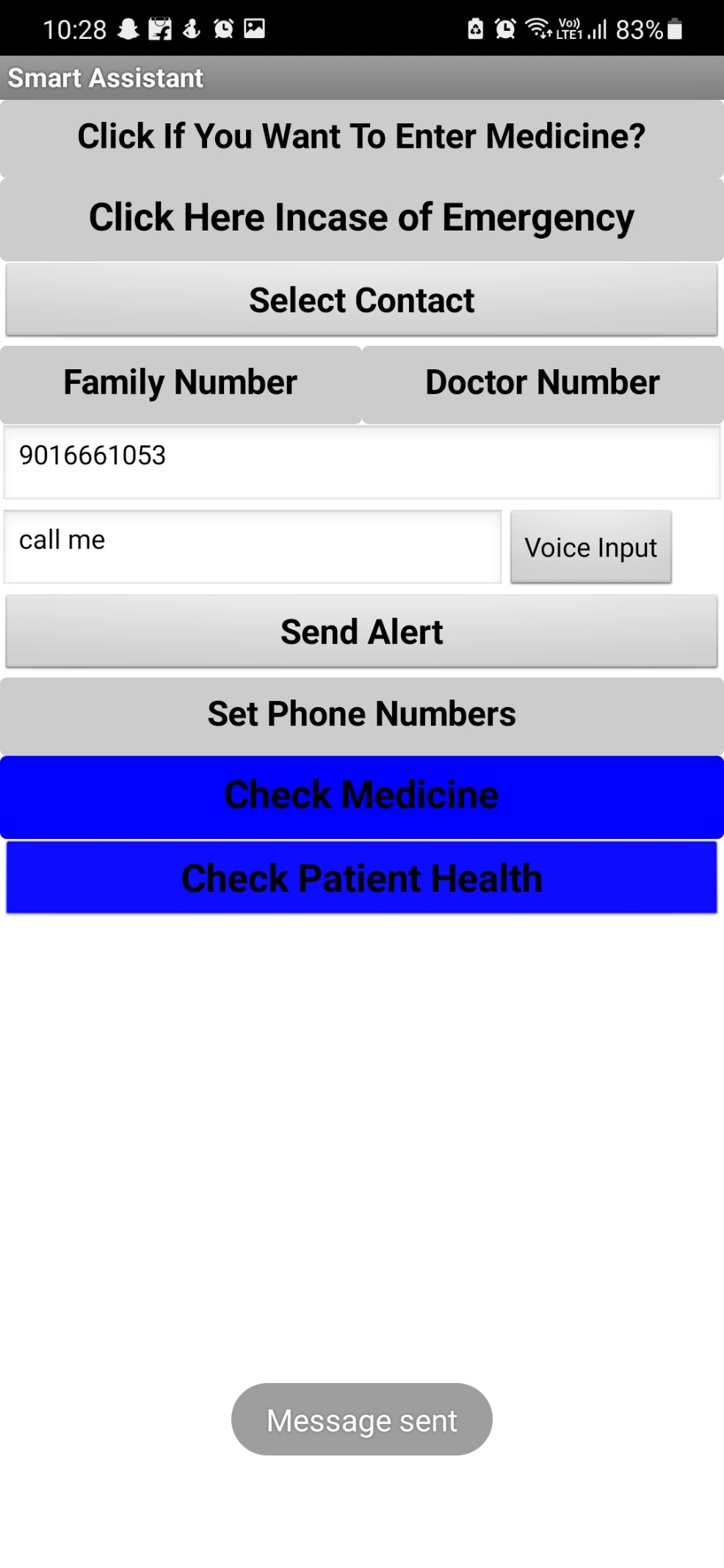


Figure 12.13 Send message in case of emergency

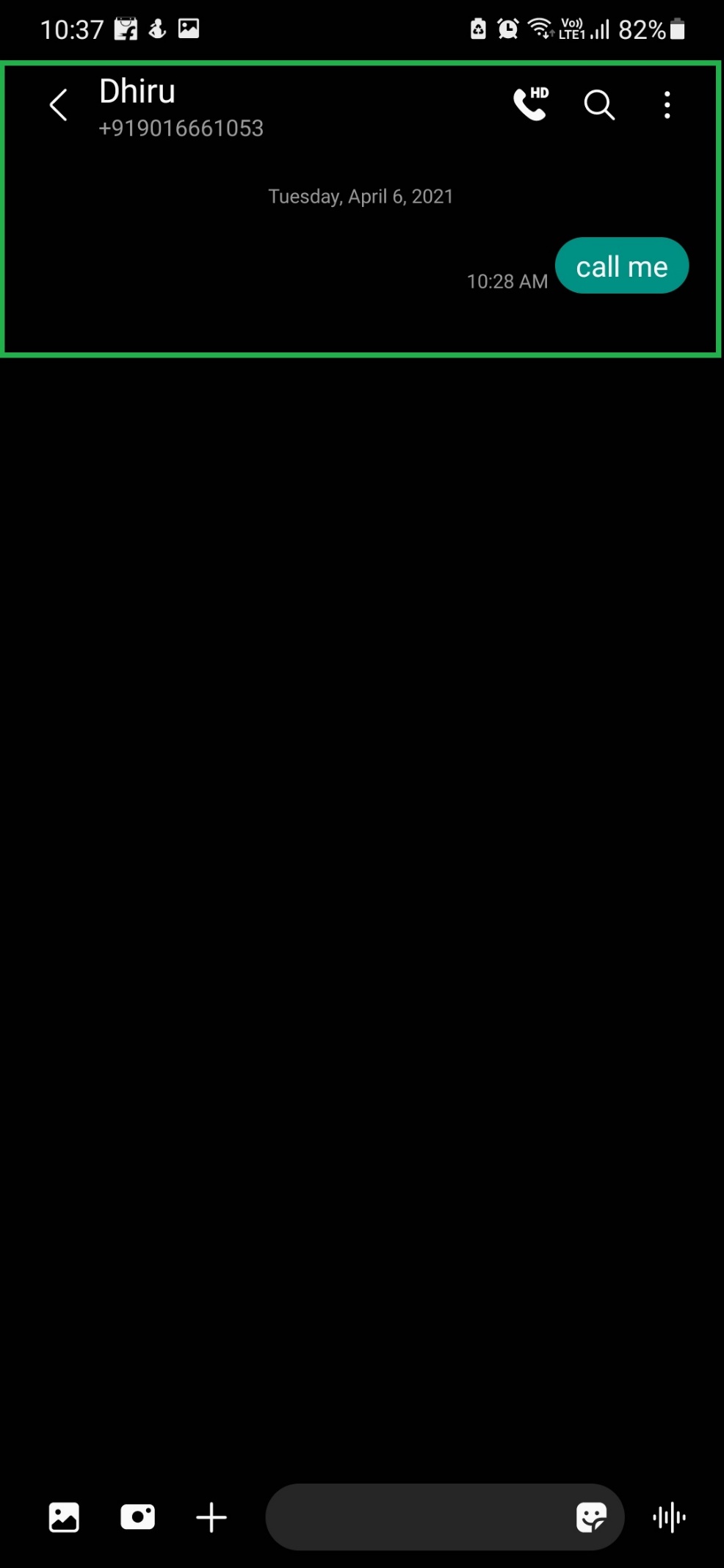


Figure 12.14 Message Sent

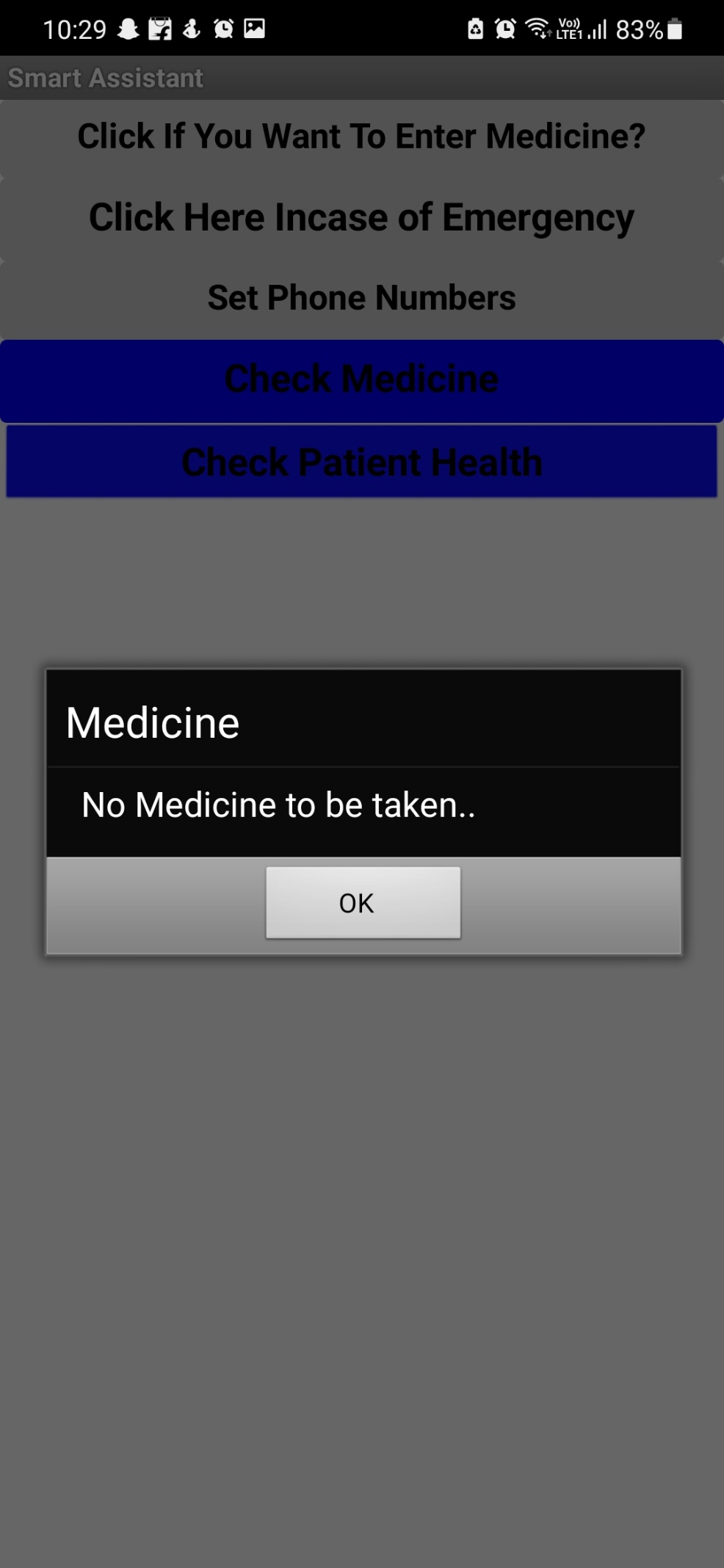


Figure 12.15 Check medicine

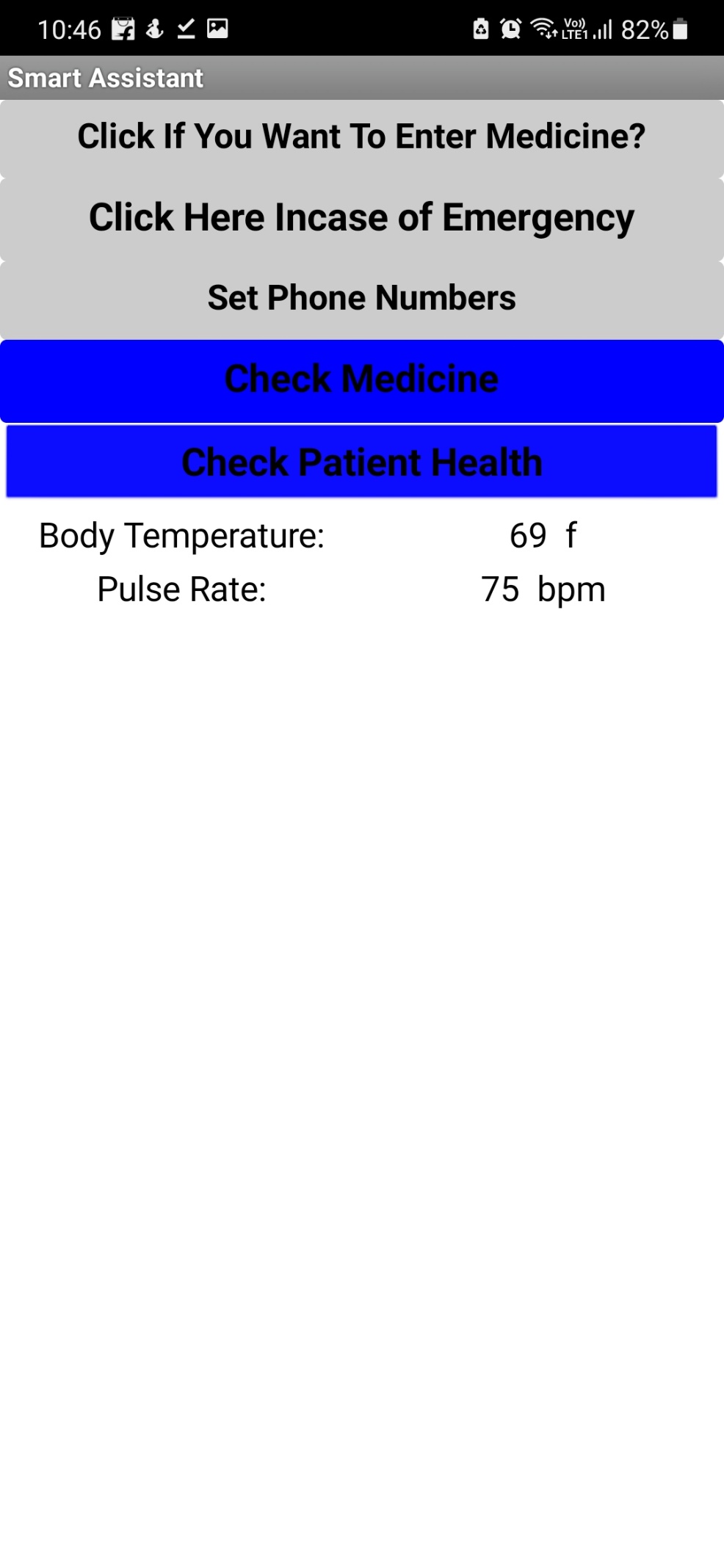


Figure 12.16 Check Health