Blood Glucose Level monitoring Device

Amit Chakma

Table of contents

01 **Introduction**

02 **Concept**

03 **Designing the concept.**

04 **Modeling**

01

Introduction

Diabetics Patient

- Diabetic patients are increasing day by day.

- Obesity lead to higher chance of diabetics.

- Insulin intake in everyday routine.

- Measuring Glucose level .

Problem

- Finger stick used to measure the to take blood sample.
- Strip sample place inside the device to measure the glucose level.
- Taking blood sample by pinching a finger with sharp needle.
- One time test not synchronous.
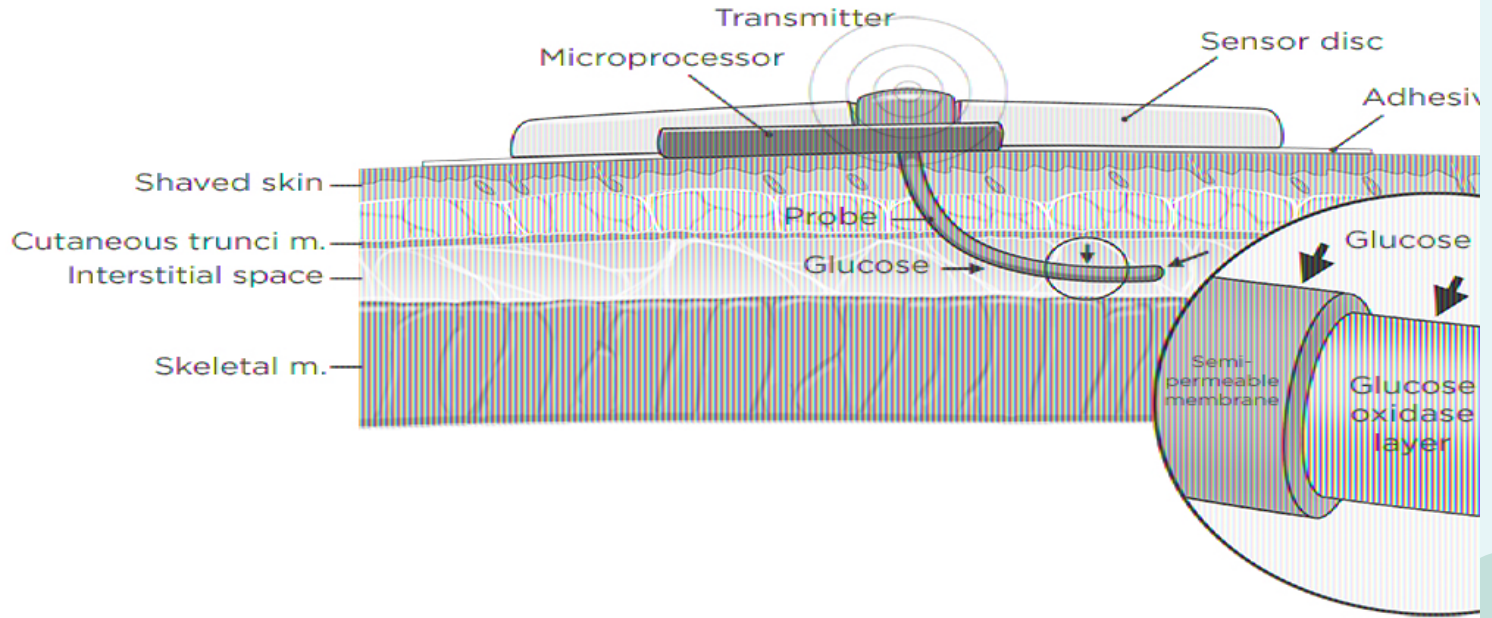
02

Concept

Continuous Blood Monitoring Device

- The device sends continuous data to users smartphone
- Alerts user in case of emergency.
- Sends data to the medical team.
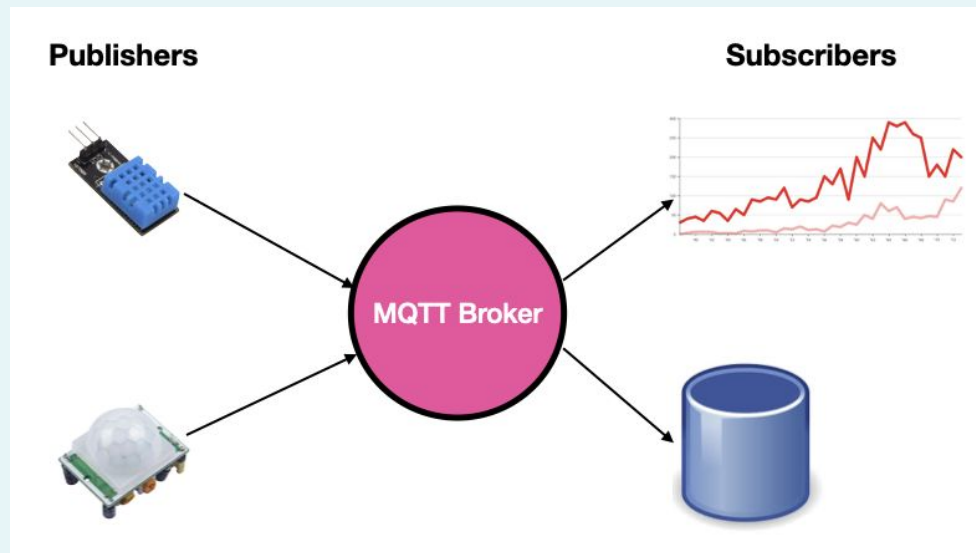- Use MQTT protocol.

How it works?
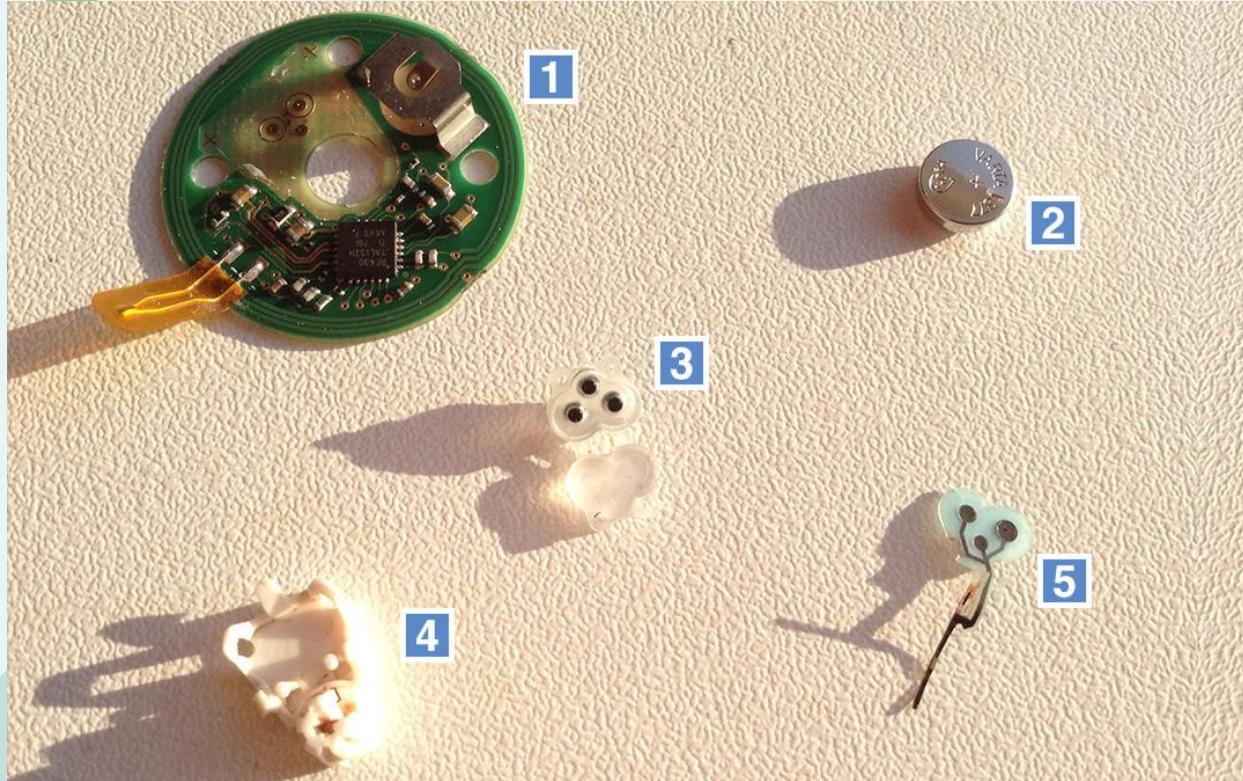
Designing the concept

03

MQTT Protocol

- Consumes low power .
- MQTT is a lightweight protocol.
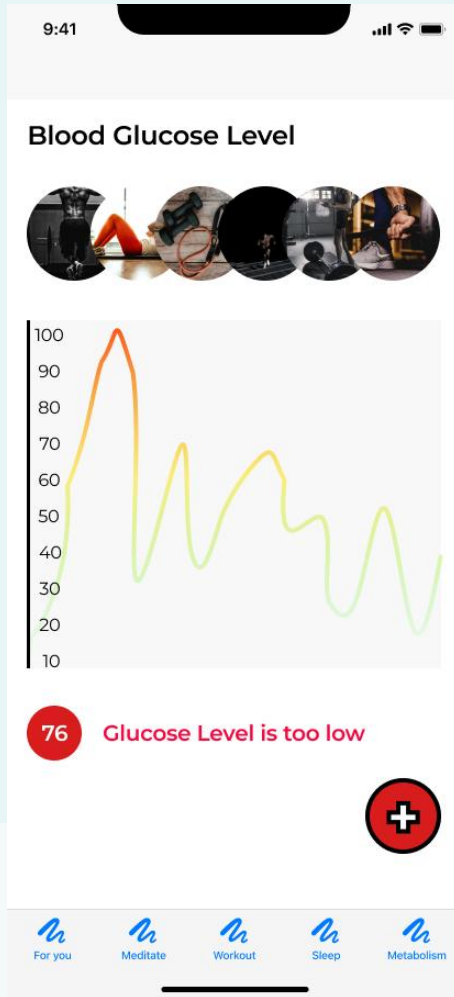- low-bandwidth environments

Hardware

1. PCB with RF430 chip for short range transmission
2. Cell battery 1.5V
3. Connector for connecting sensor and PCB.
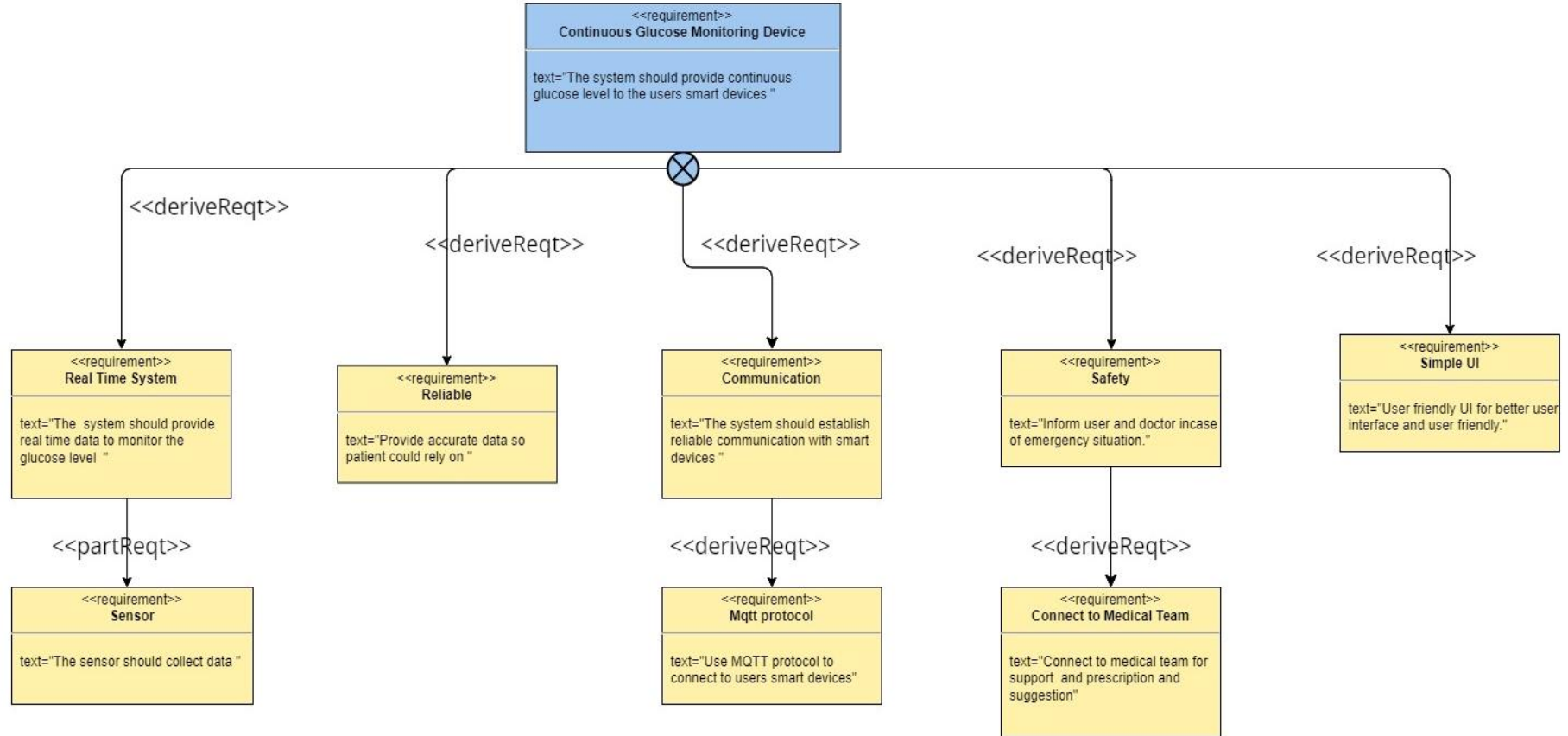4. Protection.
5. Sensor.

User Interface

1. Graph showing real time data
2. Red alert for low or too high glucose level.
3. **+** button to connect to medical teams.
4. The app can also keep track of food consumed by the user.
5. Some motivational quotes will keep the user motivated.

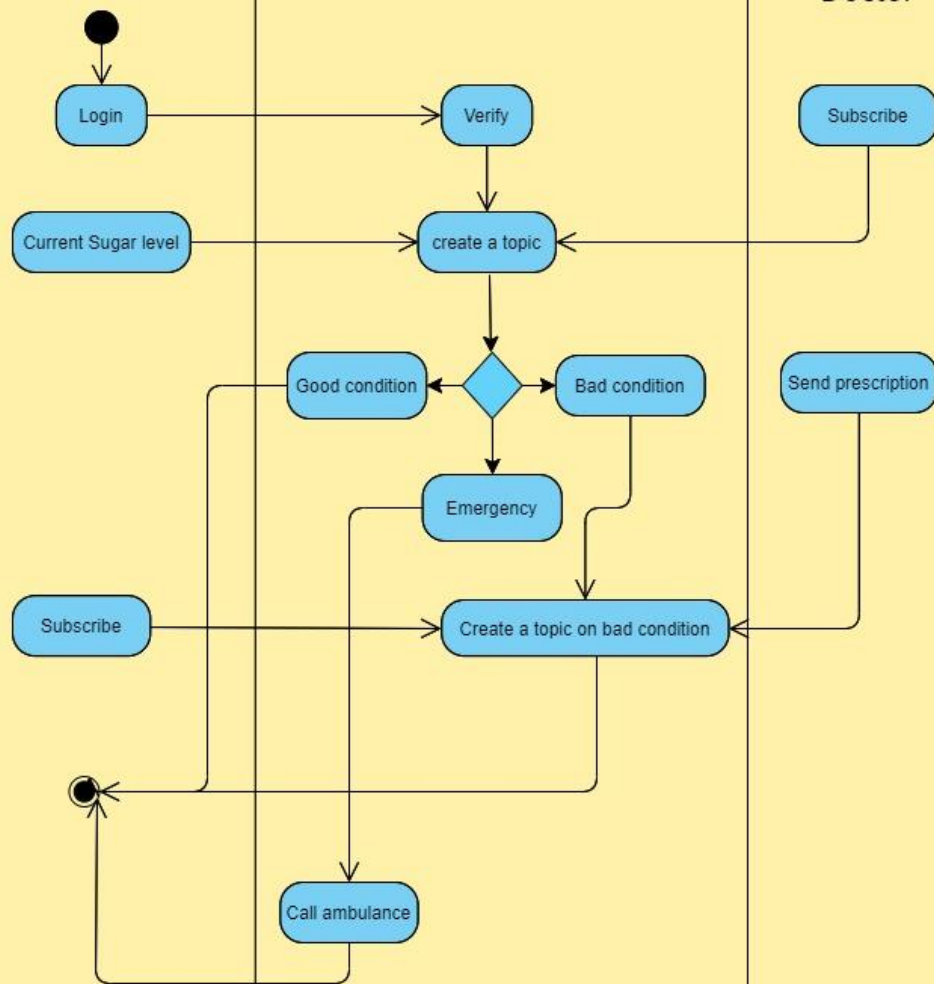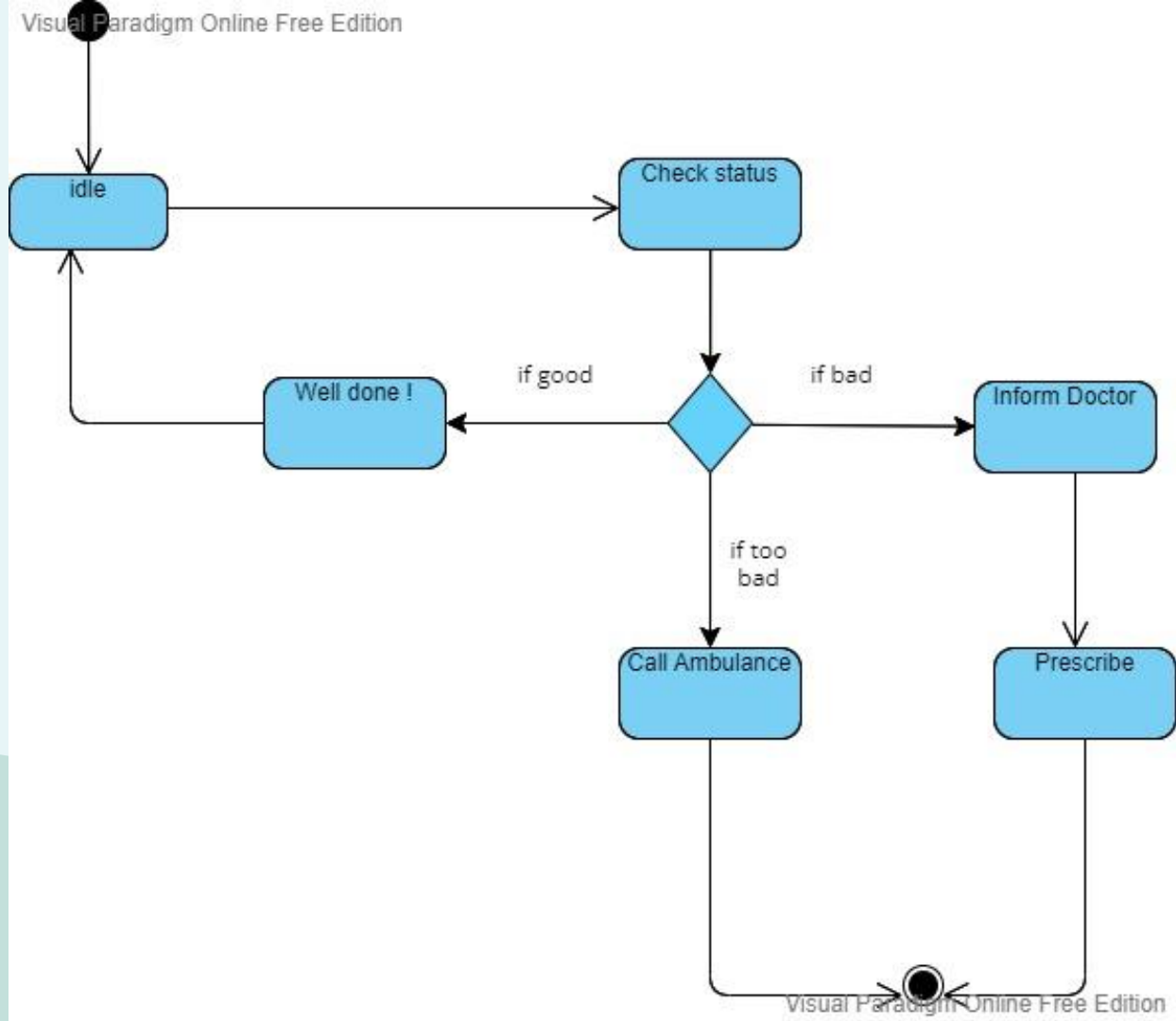# 04

Modeling

Requirement Diagram

Activity Diagram

Patient | **Server** | **Doctor**

- Login
- Verify
- Subscribe
- Current Sugar level
- create a topic
- Good condition
- Bad condition
- Send prescription
- Emergency
- Subscribe
- Create a topic on bad condition
- Call ambulance

State machine Diagram

idle

Check status

Well done !

if good

if bad

Inform Doctor

if too bad

Call Ambulance

Prescribe

Thank You