Valentine's Cup

CSE 496 Graduation Project 2
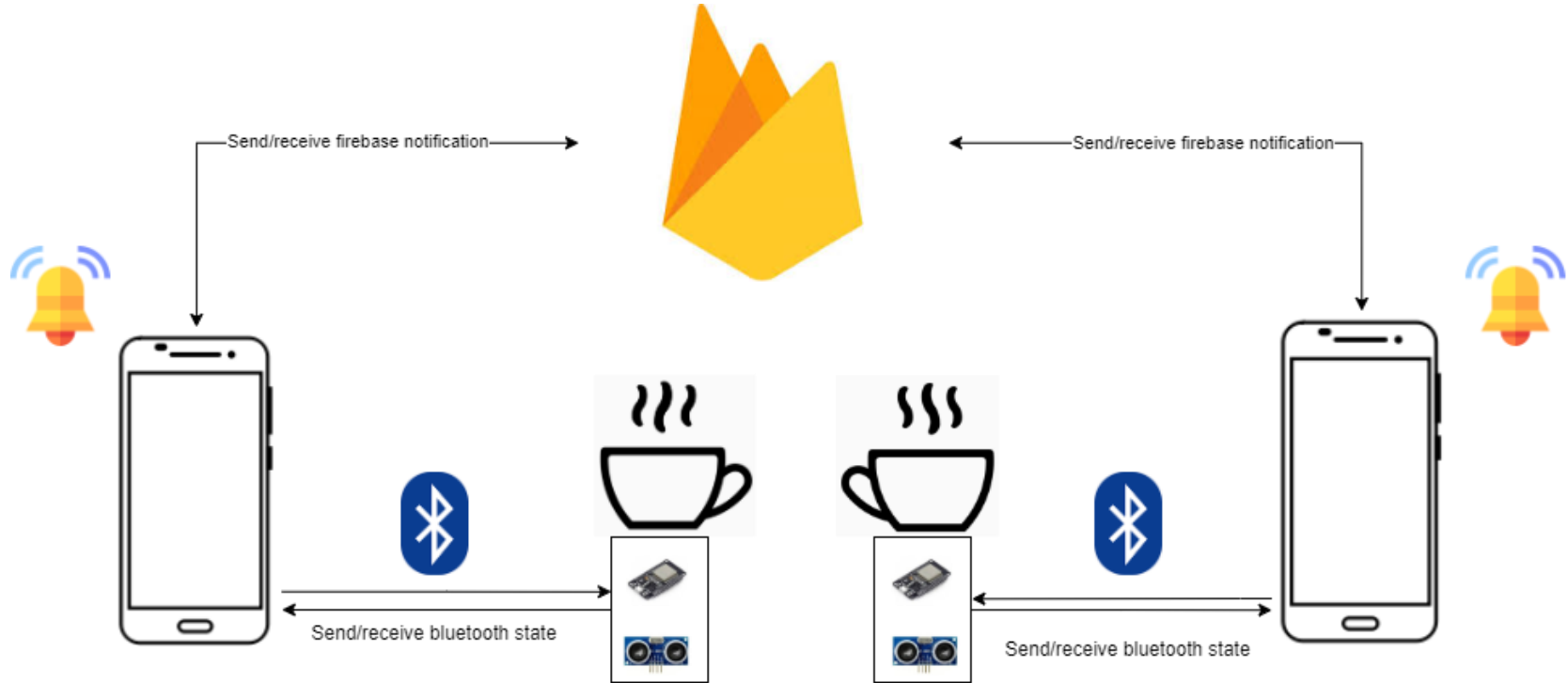**3rd Presentation**

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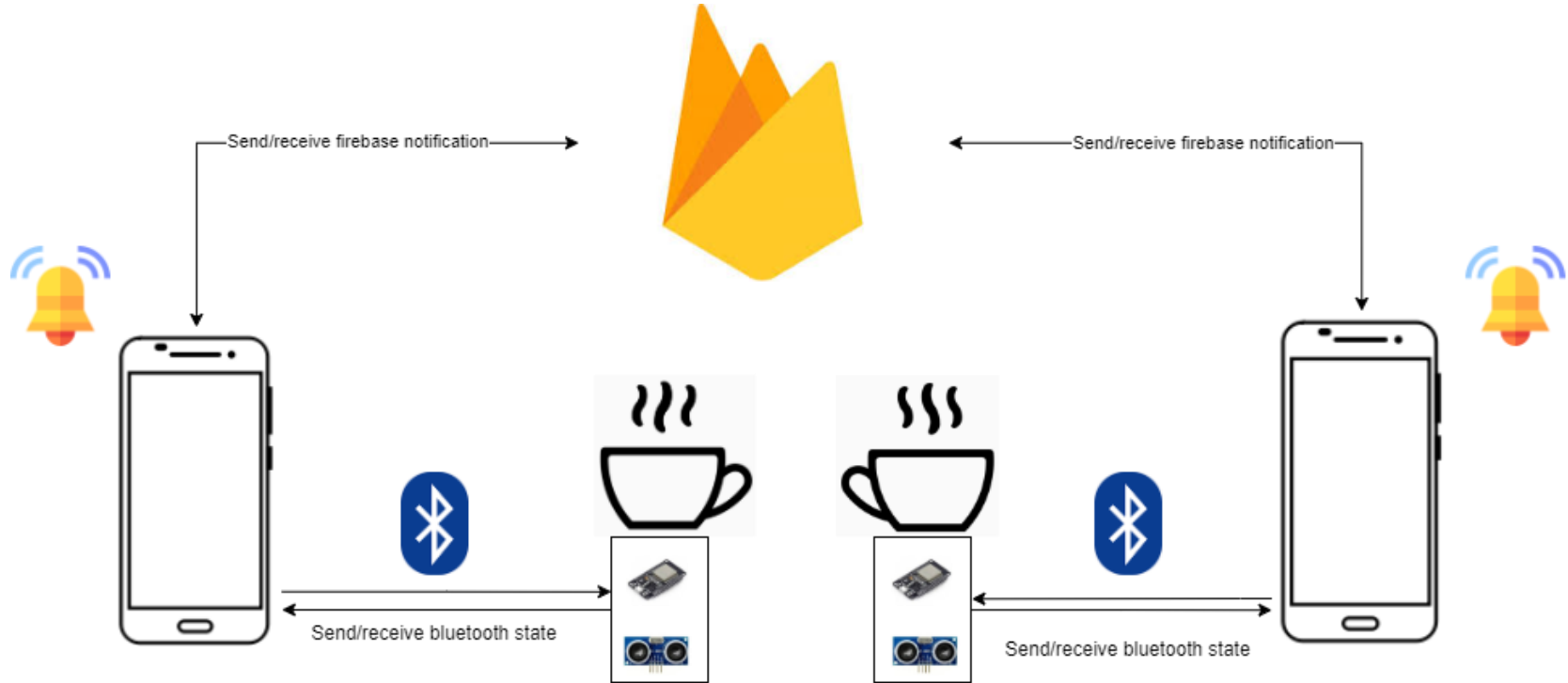- Resources and References

Project Definition

- In this Project, there are two valentines connected to their individual cups via bluetooth.

- When one drinks from their coffee, other Valentine's phone plays a song.

- Each cup has ESP32, ultrasonic distance sensor underneath. ESP32 will connect the each phone via bluetooth. ESP32 will send the current state of the cup periodically.

Timeline

10.04-23.04	24.04-07.05	08.05-21.05	22.05-04.06	05.06-18.06
• Getting ready hardware • Creating mobile app project • Creating firebase database	• Making connection of app with database • Communicate sides between each other • Set up hardware without bluetooth	• Complete bluetooth communication between hardware and phones	• Run tests	• Prepare cup view

What is done so far?

- I got two ESP32's, two ultransonic distance sensor and necesarry covers for two cups.

- In the software side, we can see the incoming data from the hardware.

- Designed screens are implemented, hardware code edited so that esp32 works efficiently. When app is closed, distance won't be measured.

```
void loop() {
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);
  duration = pulseIn(echoPin, HIGH);
  distance = duration * 0.034 / 2;

  int stopSignal = Serial.read();
  if(stopSignal=='1') {
    halt=1;
    isReady=0;
  }
  else if(stopSignal=='2') {
    halt=0;
    isReady=0;
  }
  else {
    if(halt==0) {
      if(isReady==0) {
        int readByte=SerialBT.read();
        Serial.print("Read byte : ");
        Serial.print((char)readByte);
        Serial.print(" ");
        Serial.println(readByte);
        if(readByte=='+') {
          isReady=1;
        }
        else if(readByte=='-') {
          isReady=0;
          halt=1;
        }
        else {
          Serial.println("Read byte is not +");
        }
      }
      else {

        Serial.print("Distance is : ");
        Serial.println(distance);
        if(distance < 10) {
          SerialBT.println("DOWN");
        }
        else {
          SerialBT.println("UP");
        }
        int readByte=SerialBT.read();
        if(readByte=='-') {
          isReady=0;
          halt=1;
        }
        if(SerialBT.connected()) {
        }
        else {
          SerialBT.println("SerialBT not available");
          isReady=0;
          halt=0;
        }
      }
    }
    else {
      Serial.println("Halted");
    }
  }
  delay(100);
}
```
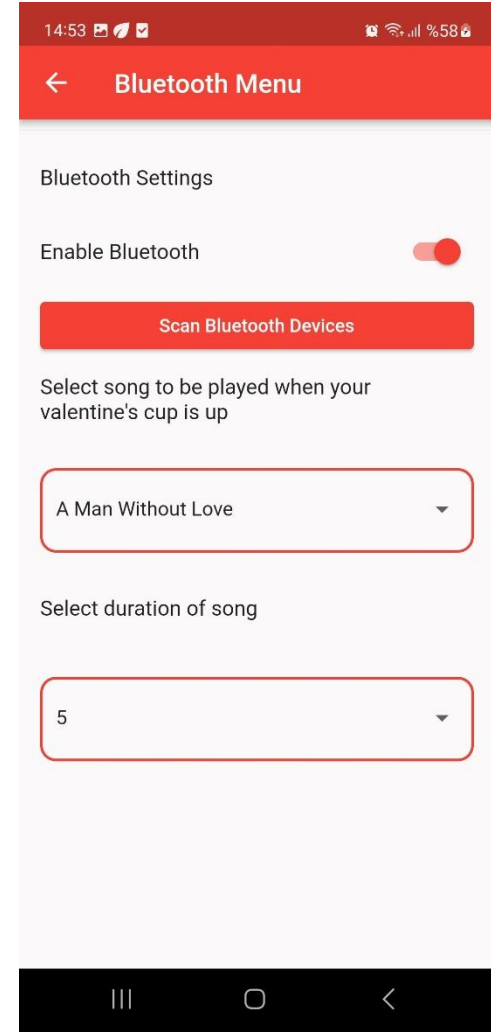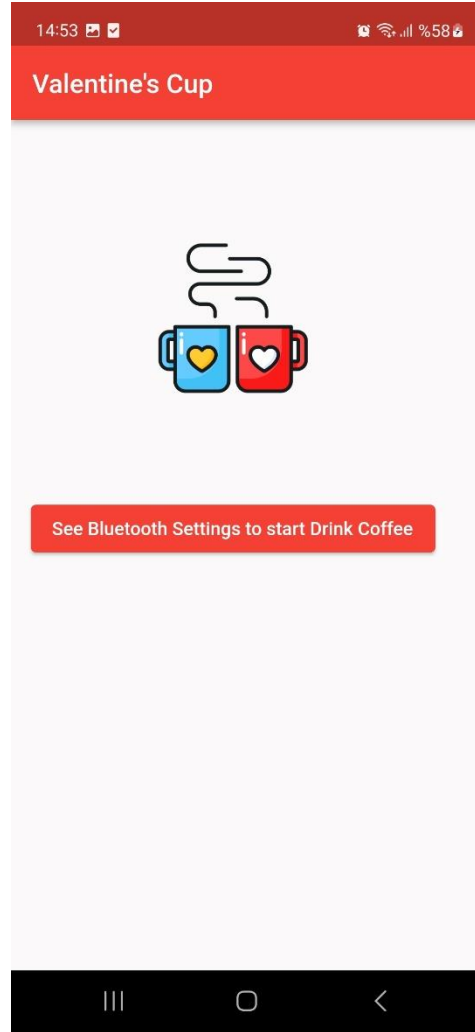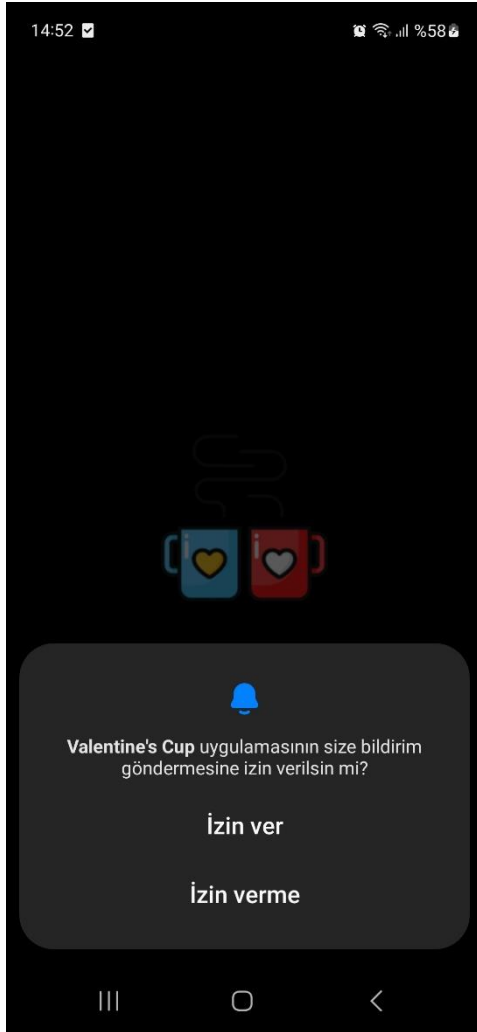
```
void setup() {
  Serial.begin(115200);
  SerialBT.begin("Valentine_Cup_1");
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
}
```
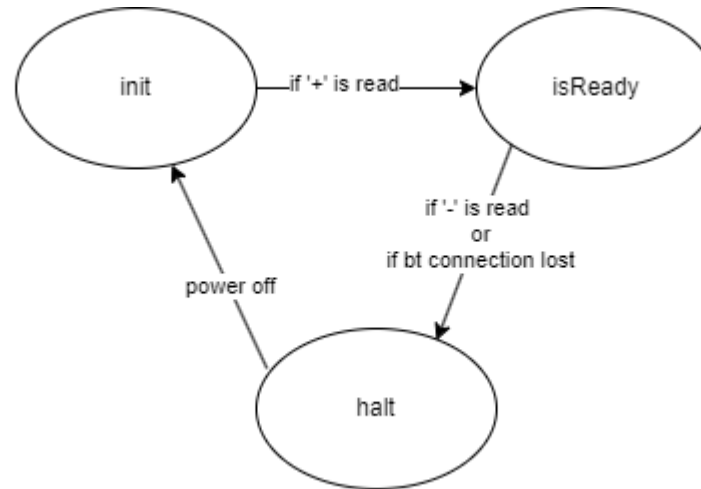
Screens

Screens – contd.
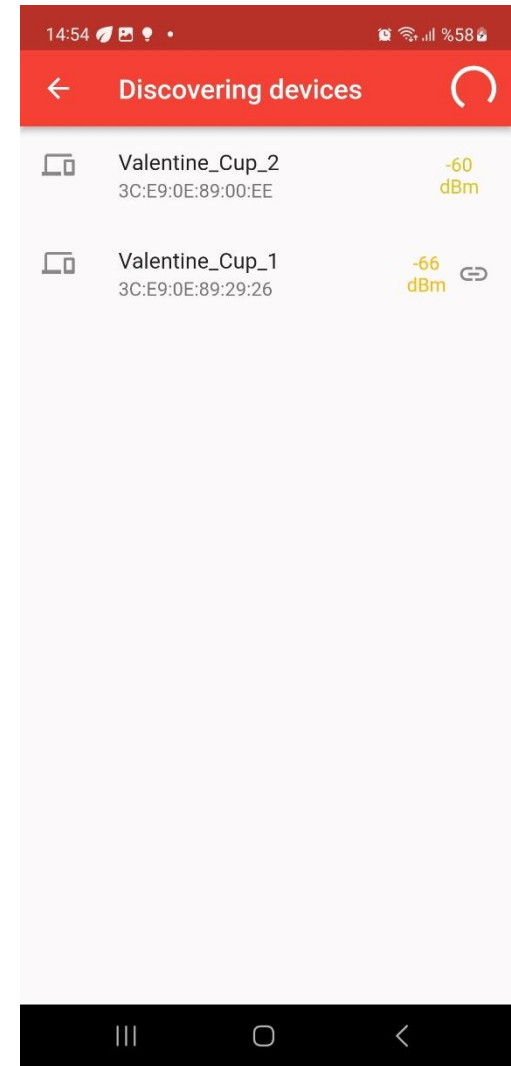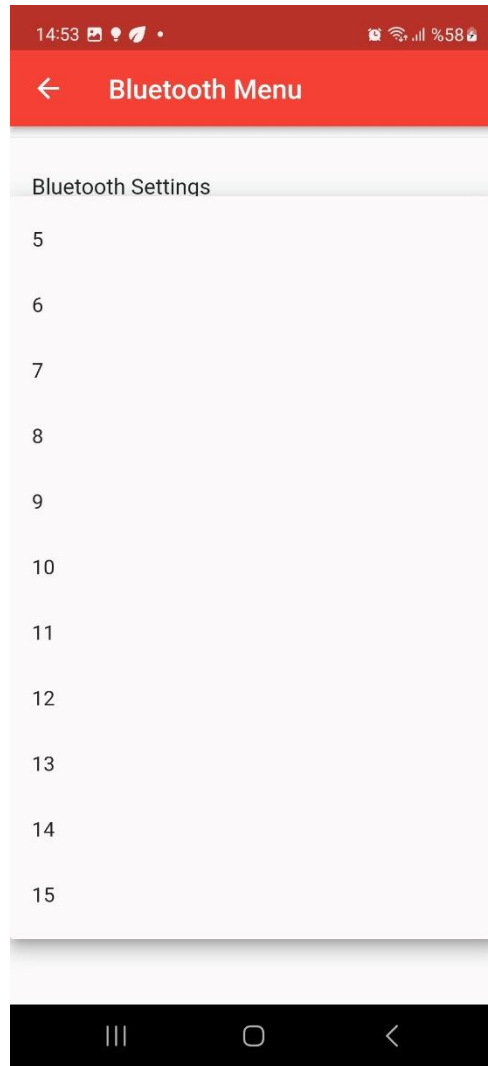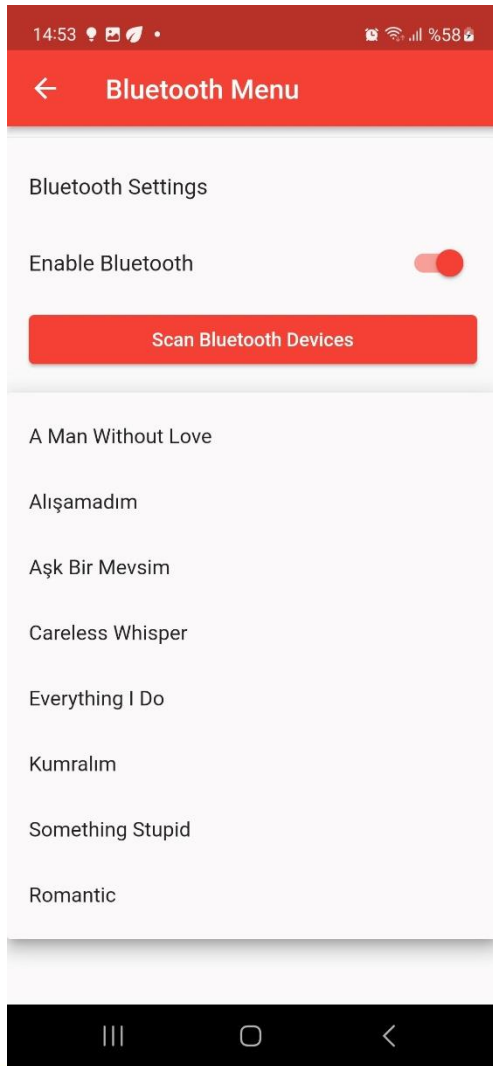
Screens - contd
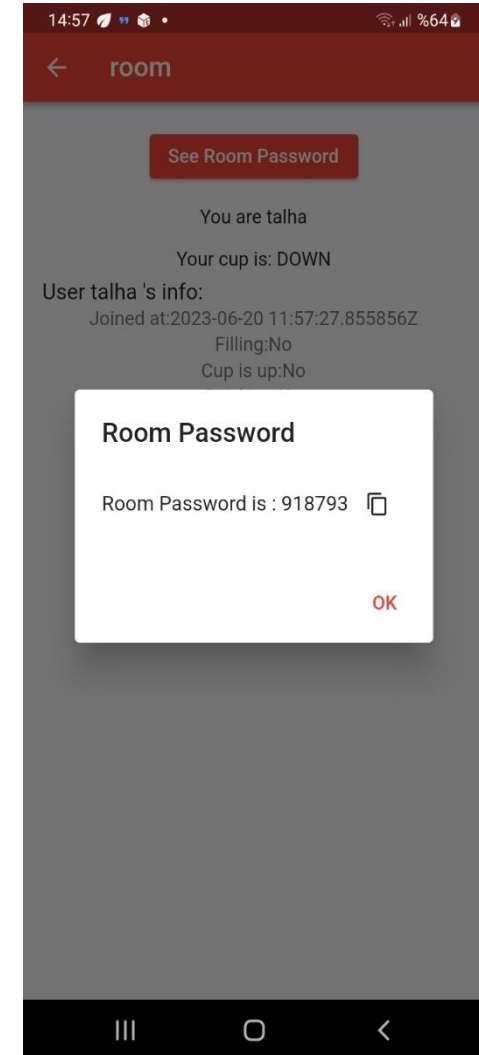
Screens - contd

https://flutter-fcm-6946b-default-rtdb.europe-west1.firebasedatabase.app/

- rooms
  - room
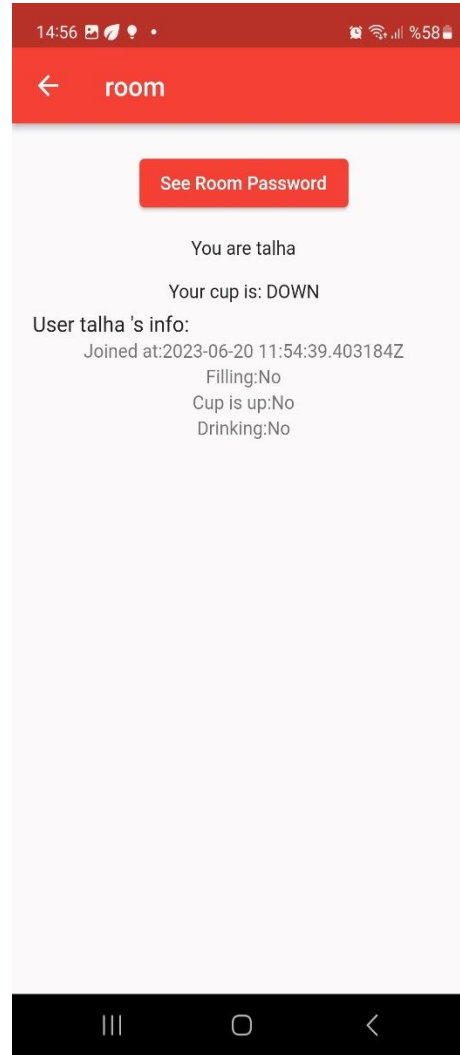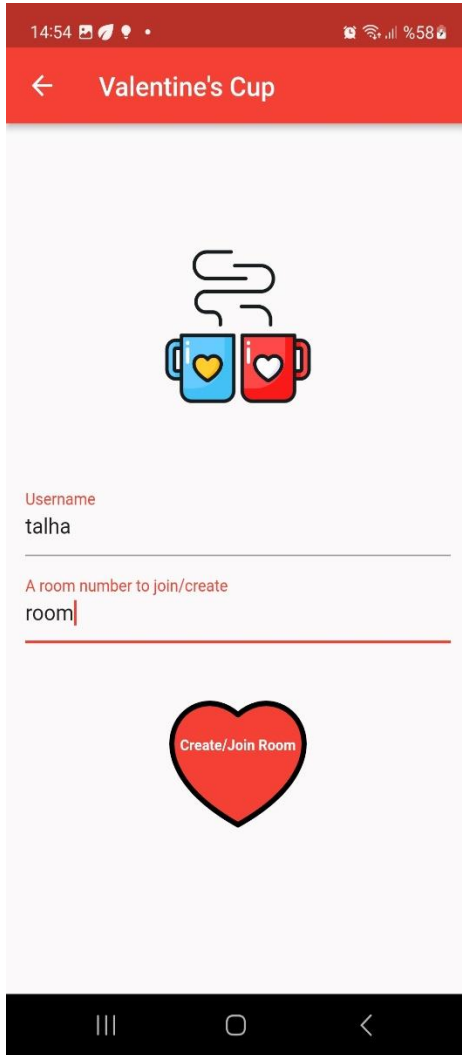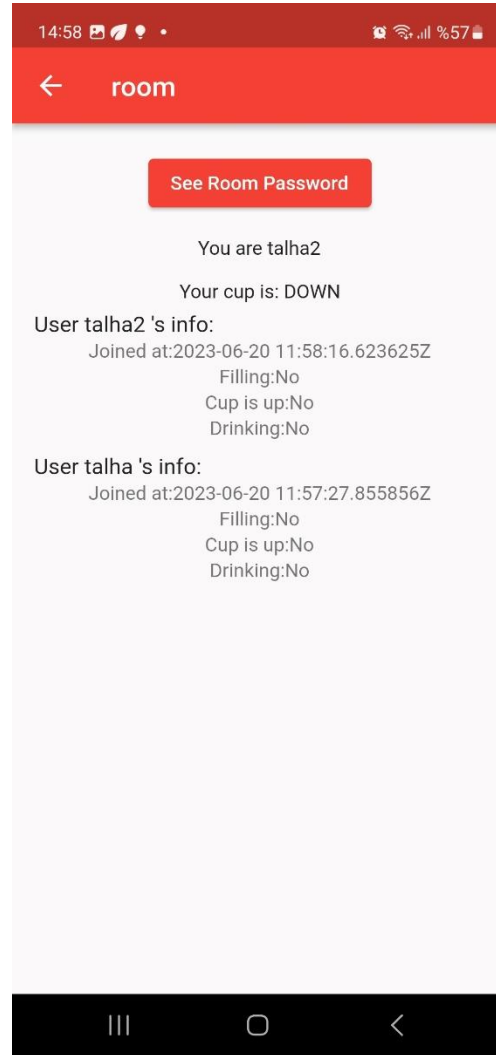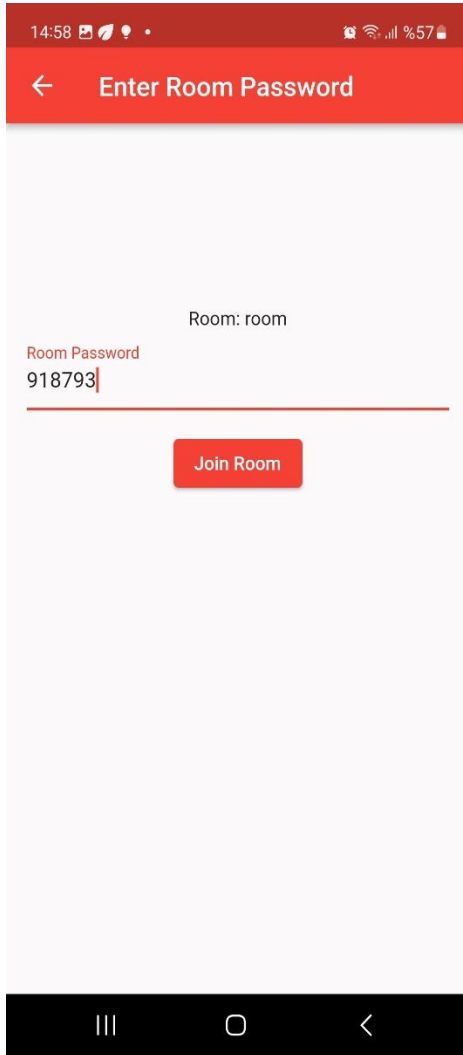   - createdAt: "2023-06-20 11:57:27.843064Z"
    - isLocked: false
    - password: "918793"
    - users
      - talha
        - Cup is up: "No"
        - Drinking: "No"
        - Filling: "No"
        - joinedAt: "2023-06-20 11:57:27.855856Z"
        - name: "talha"
        - token: "fpp6C8WIQwizIBVq4k4pwU:APA91bEK_D1Q-_LI4OXbo6J2ZCjIRmJkq8wPap1ET5ZO36HnEA0_cQaACy4hYbGZ-oGR35s1RfdvLv5toTaYMiIByACP.

- talha2
  - Cup is up: "No"
  - Drinking: "No"
  - Filling: "No"
  - joinedAt: "2023-06-20 11:58:16.623625Z"
  - name: "talha2"
  - token: "exe_KnyQRuy9-RLXepR_0I:APA91bHd6L3pZ0QfmDoW_g2qv9euQRI-qrB5PS527w4YbeR9DX0M1d7jfjTD6kWV-fmPqn6rpojiD_3ZwKMls2Ffo2

What could be done from now on?

- Music options can be selected from phones music library

Success Criterias

- ## Sensor accuracy
  - Ultrasonic distance sensor must be accurate and provide reliable data to the ESP32, ensuring that the distance measurement is precise and consistent.

- ## Bluetooth connectivity
  - The ESP32 must establish a stable Bluetooth connection with the phone and ensure that sensor data is transmitted accurately and in real-time.

- ## Cloud messaging
  - The system must be able to send and receive notifications via Firebase Cloud Messaging.

Resources

1. https://www.robotistan.com/esp32-esp-32s-wifi-bluetooth-dual-mode-gelistirme-karti

2. https://www.robotistan.com/hc-sr04-ultrasonik-mesafe-sensoru

3. ESP32 – Ulrasonic distance sensor connection video

4. ESP32 – Bluetooth library video

5. Flutter_blue library for bluetooth connection

6. https://cdn4.iconfinder.com/data/icons/google-i-o-2016/512/google_firebase-2-512.png

7. https://upload.wikimedia.org/wikipedia/commons/thumb/d/da/Bluetooth.svg/1342px-Bluetooth.svg.png

8. Draw.io for designs