

SMART ACCESS CONTROL and MONITORING SYSTEM

using RFID and IoT Technology

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POINTS OF DISCUSSION

- About The Project
- Functions and Features
- Resources
- Circuit Diagrams
- System Architecture
- App and Database Previews
- Flowchart
- Mobile App Demo
- Project Cost Breakdown
- Gantt Chart

! ABOUT THE PROJECT

This project incorporates an RFID sensor and key to authenticate authorized persons within an establishment. When an authorized UID is scanned by the RFID, a green light will turn on. If the sensor detects an unauthorized attempt, a red light will turn on, and the alarm system will engage. The room's LEDs can be turned off and on via the dashboard. Additionally, the project includes a dedicated mobile app that is only accessible by the administrator, featuring comprehensive control over lights and sensors, a dashboard displaying all data of entries, and a constant temperature and humidity display.

FUNCTIONS & FEATURES



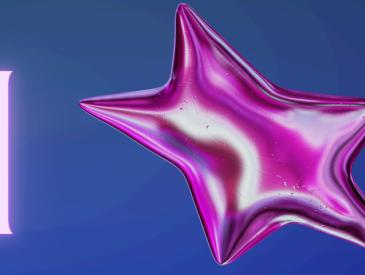
- RFID logging of users (authorized and unauthorized)
- Dedicated Mobile Application
 - Displaying status for lights, alarm, temperature and humidity
 - In-app controls of enabling/disabling alarms and lights
 - Creating, updating, user account details and restrictions
 - Data entry logs

MATERIALS & APPLICATIONS



- Arduino
- Wemos D1
- RFID module and key
- DHT sensor
- Relay switch
- Buzzer
- LED
- Visual Studio 2022 (C#)
- PHP
- MySQL
- XAMPP
- Arduino IDE
- Xamarin Android Studio

CIRCUIT DIAGRAM

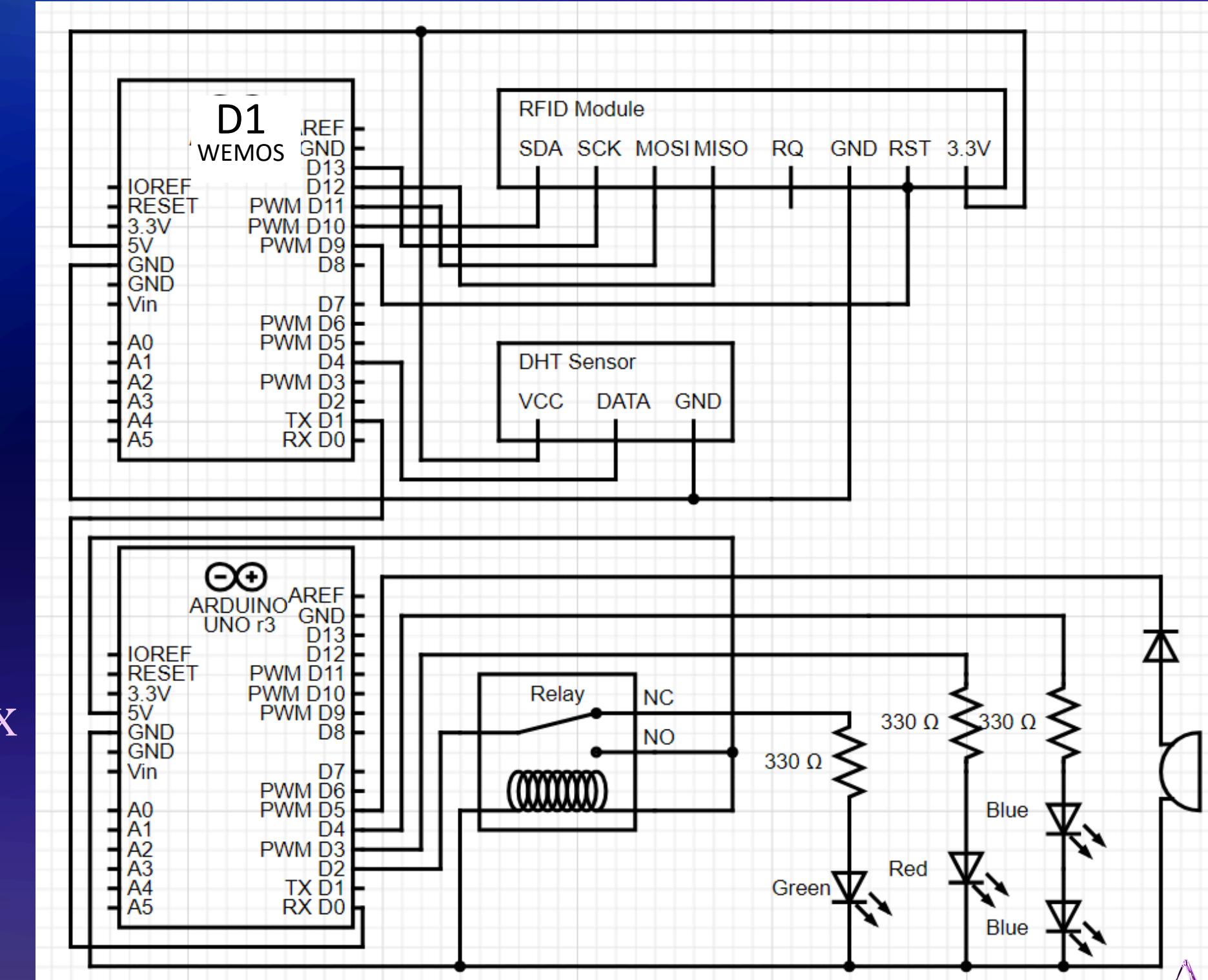


Wemos

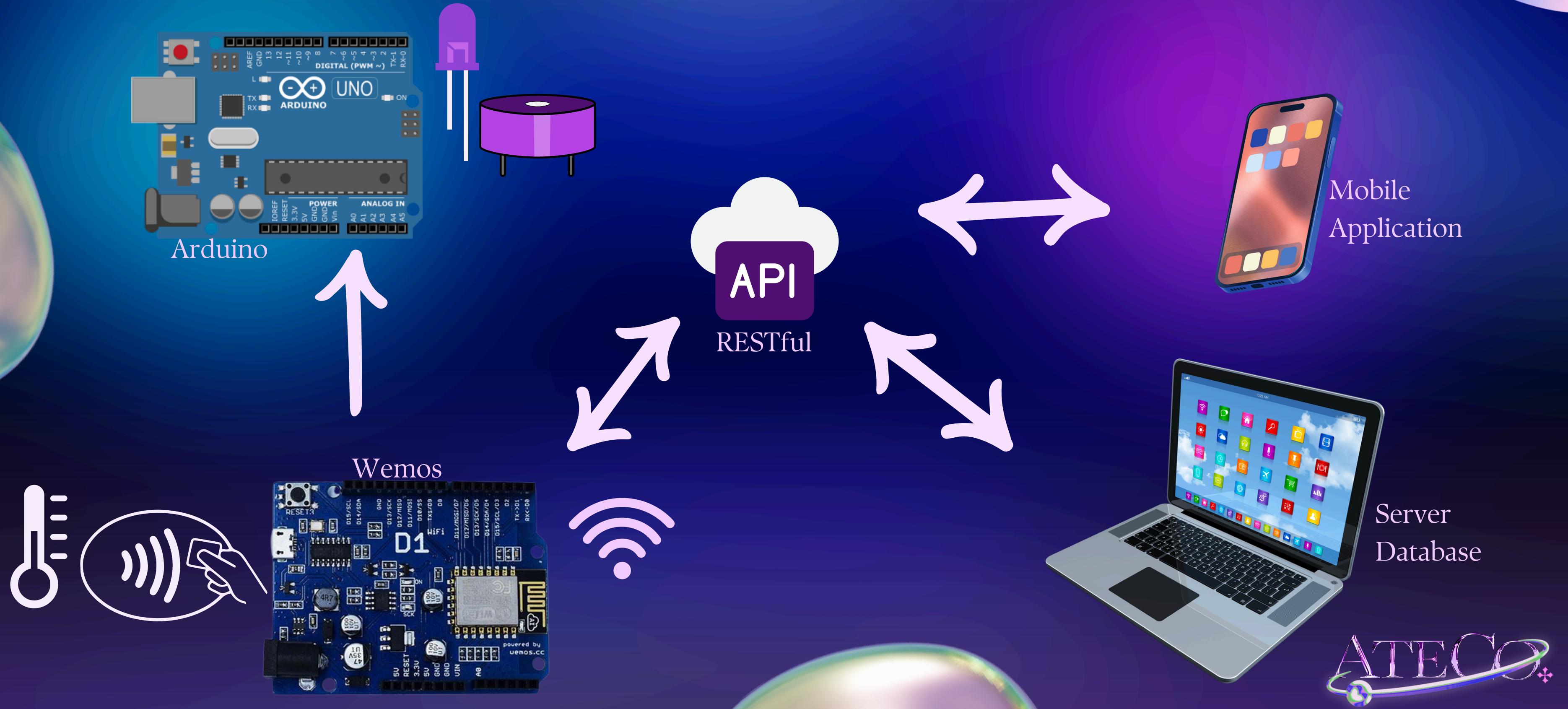
- D1 - Tx to Arduino Rx
- D4 - DHT sensor
- D9 - RFID rst
- D10 - RFID sda
- D11 - RFID mosi
- D12 - RFID miso
- D13 - RFID sck

Arduino

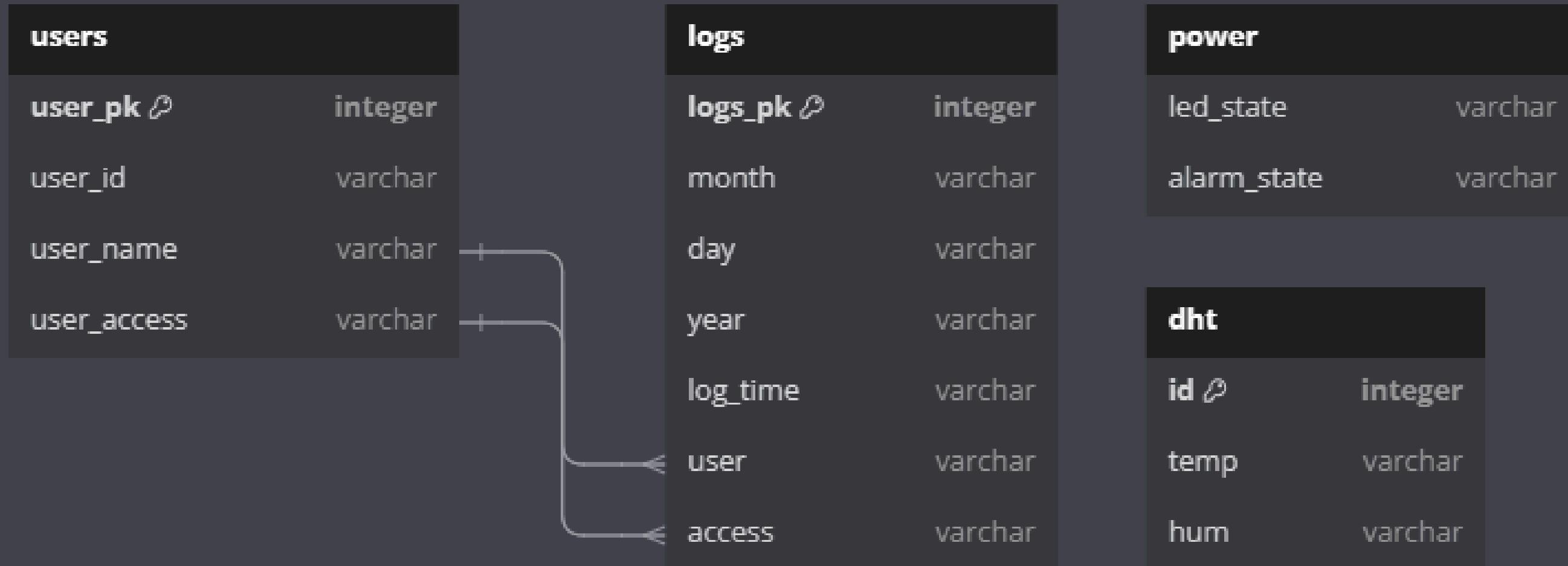
- PIN 0 - Rx from Wemos Tx
- PIN 2 - Green LED
- PIN 3 - Red LED
- PIN 4 - Blue LED
- PIN 5 - Buzzer



SYSTEM ARCHITECTURE ❤

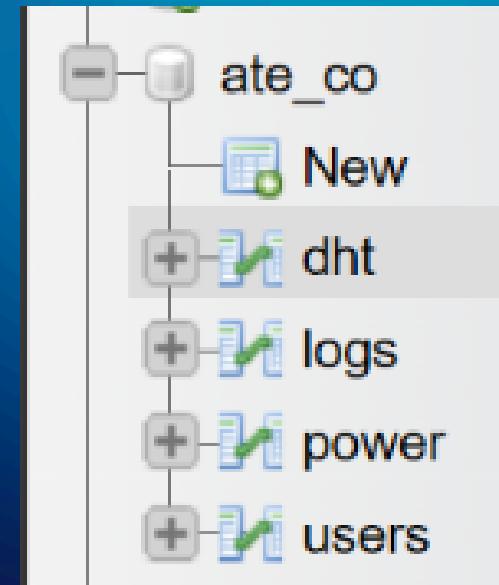
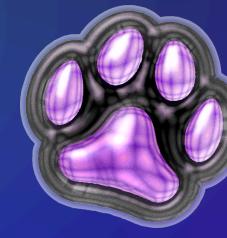


DATABASE PREVIEW



dbdiagram.io

DATABASE PREVIEW



ate_co
database

	id	temp	hum
	984	32.80	95.00
	985	32.80	95.00
	986	32.80	95.00
	987	32.80	95.00
	988	32.80	95.00
	989	32.80	95.00
	990	32.80	95.00
	991	32.80	95.00

dht table

	logs_pk	month	day	year	log_time	user	access
e	1	07	20	2024	15:50:28	Ivan	1
e	2	07	20	2024	15:51:30	Ivan	1
e	3	07	20	2024	15:52:08	Ivan	1
e	4	07	20	2024	15:52:10	Ivan	1
e	5	07	20	2024	15:56:38	Ivan	1
e	6	07	20	2024	15:57:15	Ivan	1
e	7	07	20	2024	15:58:40	Ivan	1
e	8	07	20	2024	15:59:00	Ivan	1

logs table

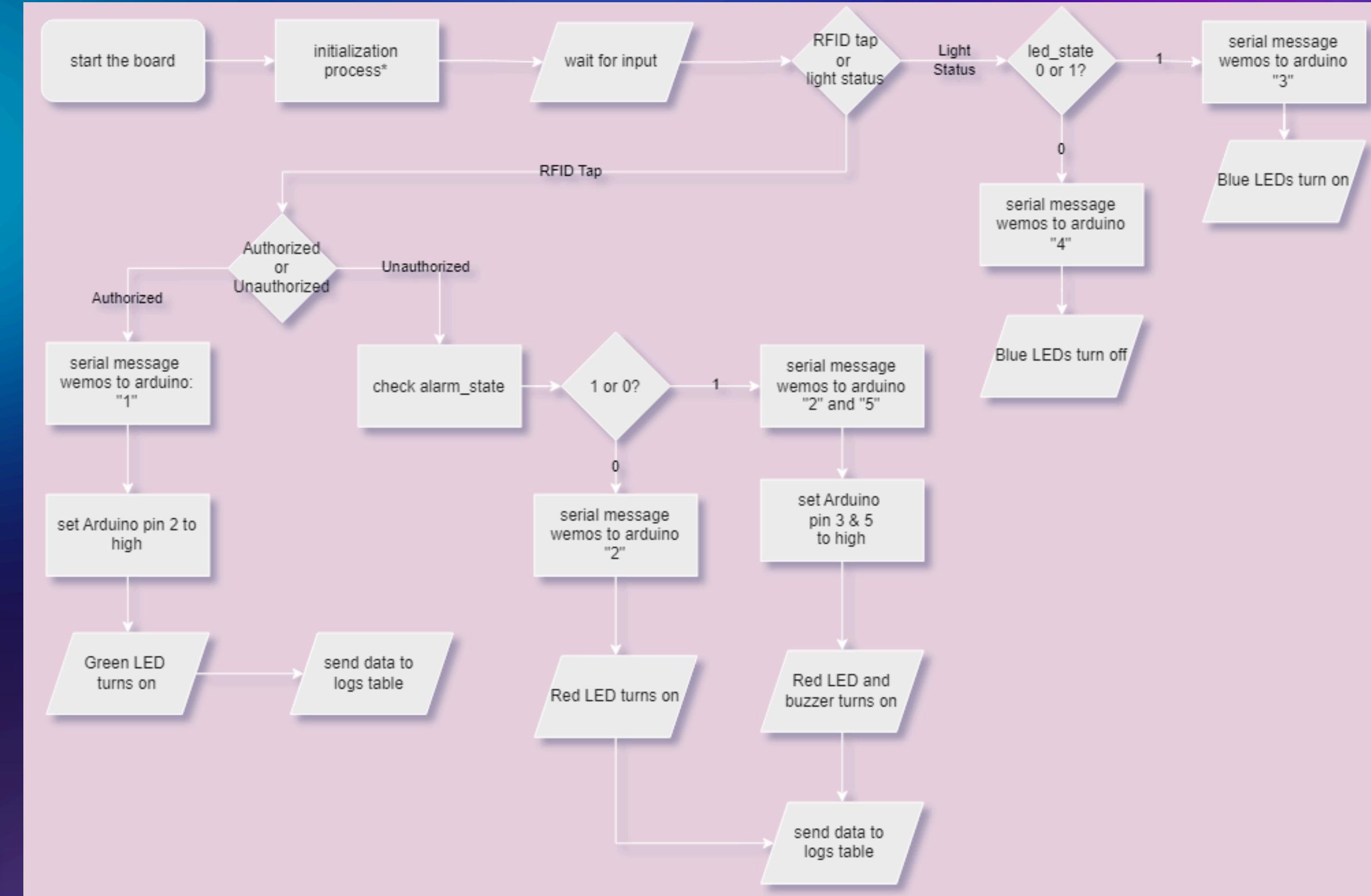
led_state	alarm_state
1	1

power table

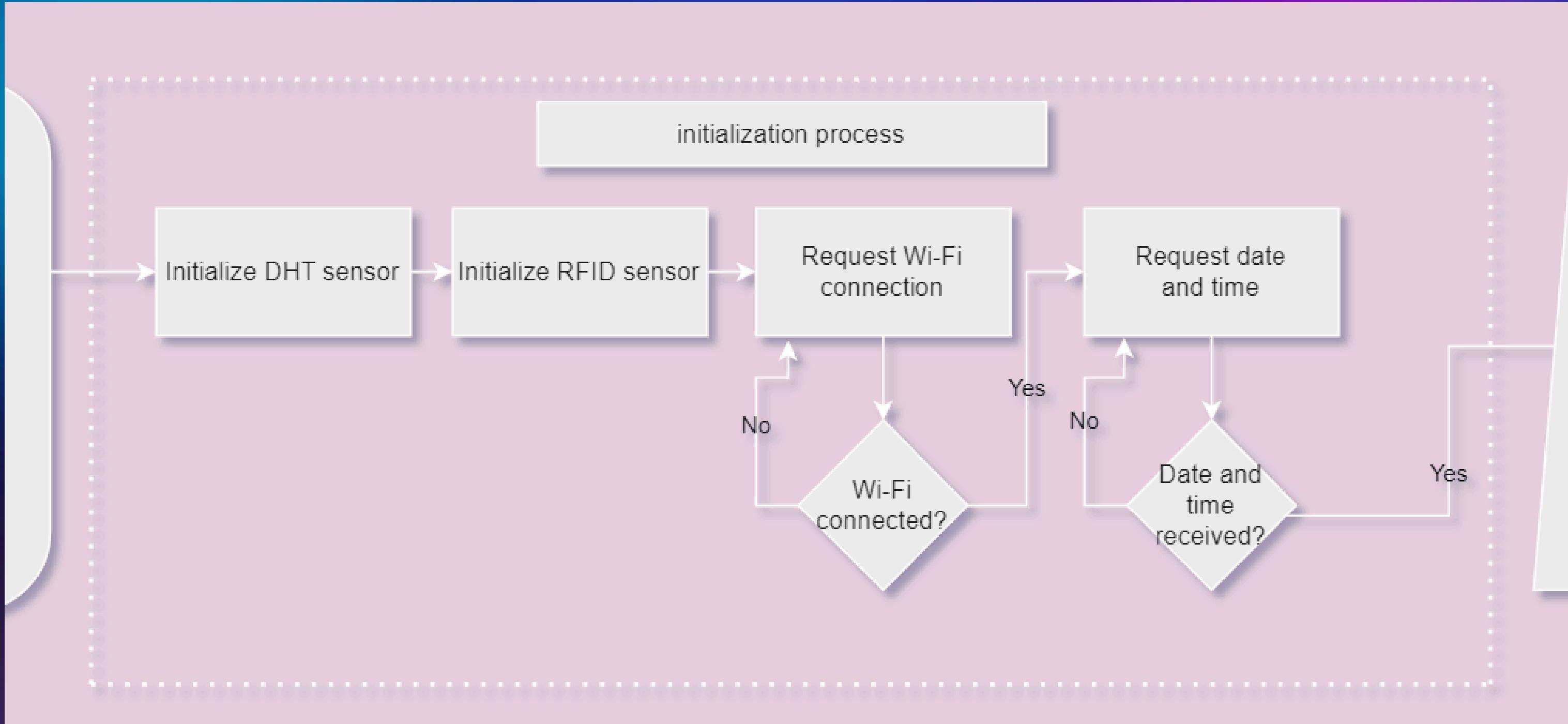
user_pk	user_id	user_name	user_access
1	B6 DF F3 8B	Ivan	1
2	19 48 A1 28	Reiner	0
3	5C B5 30 16	Xavier	1

users table

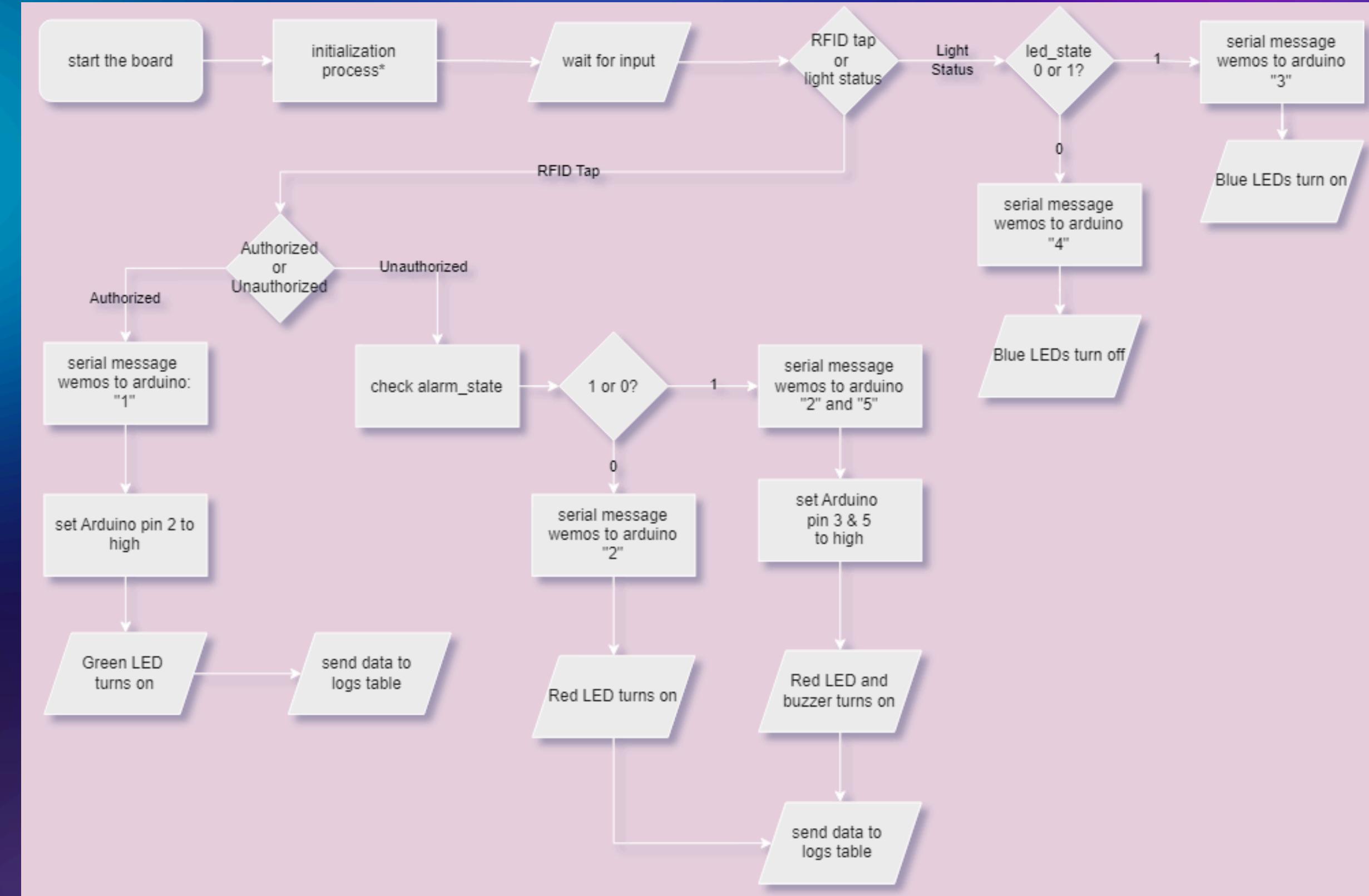
FLOWCHART



FLOWCHART

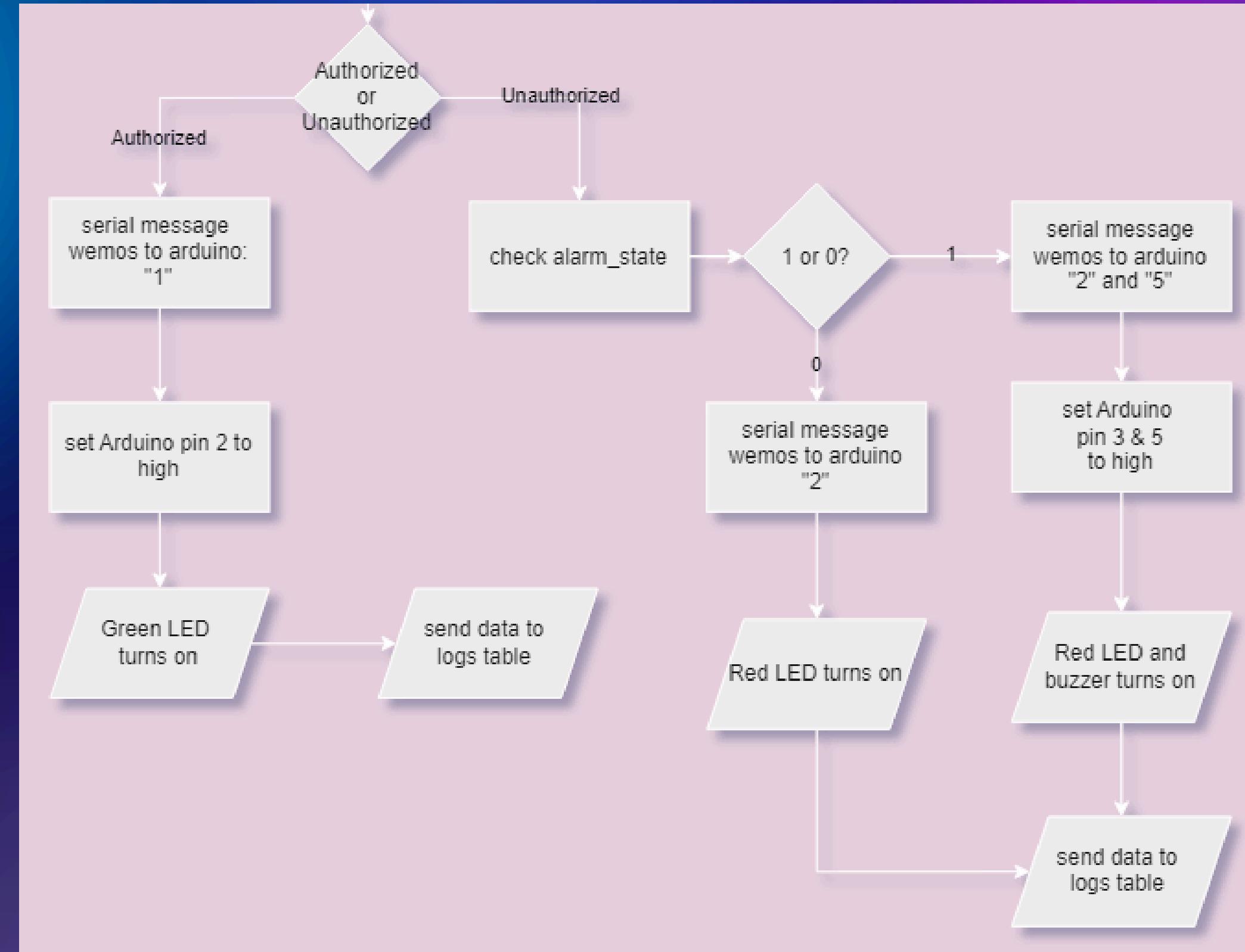


FLOWCHART

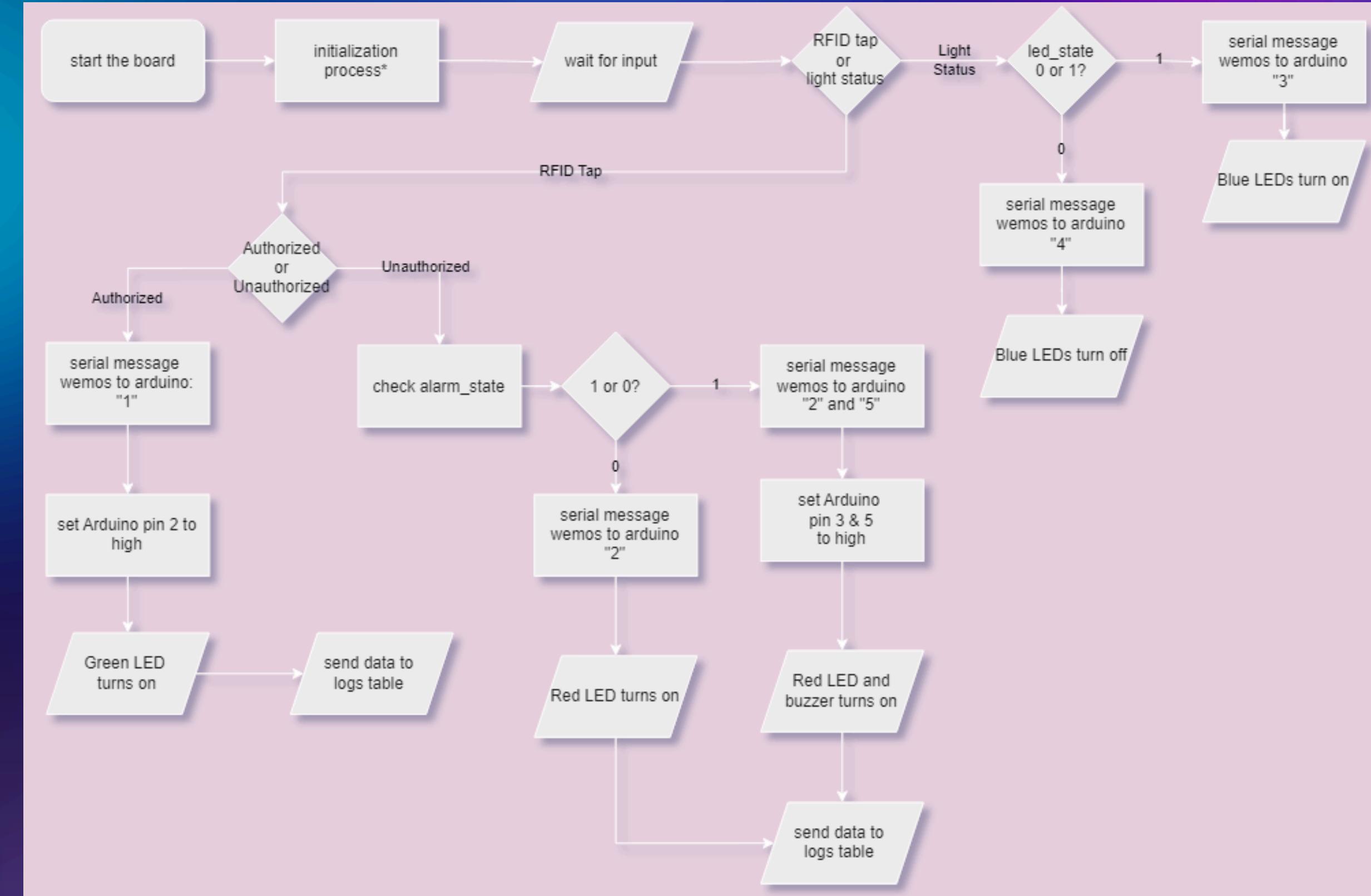


FLOWCHART

- 1 - Authorized UID Detected
- 2 - Unauthorized UID Detected
- 3 - led_state is set to 1
- 4 - led_state is set to 0
- 5 - alarm_state is set to 1

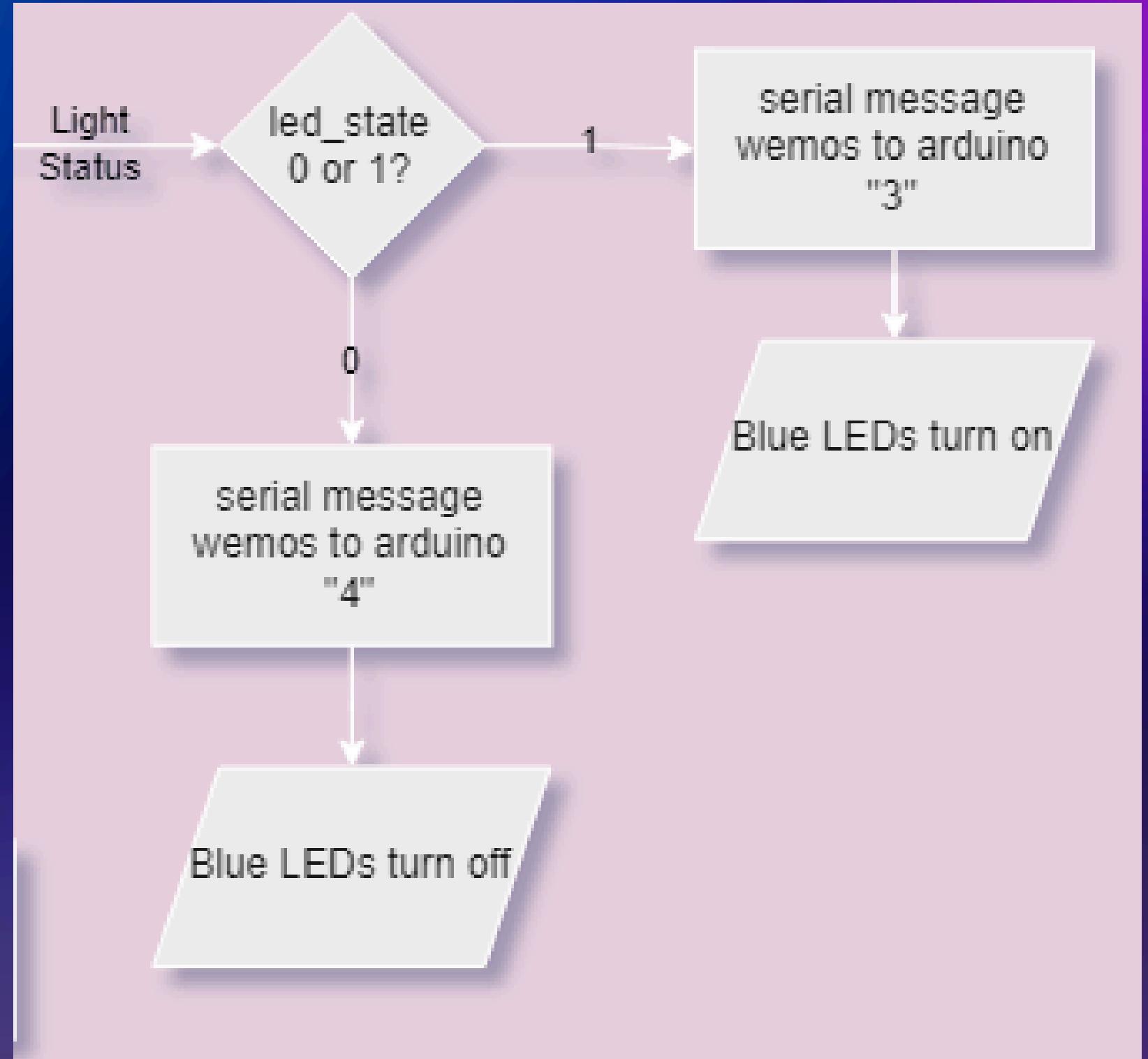


FLOWCHART

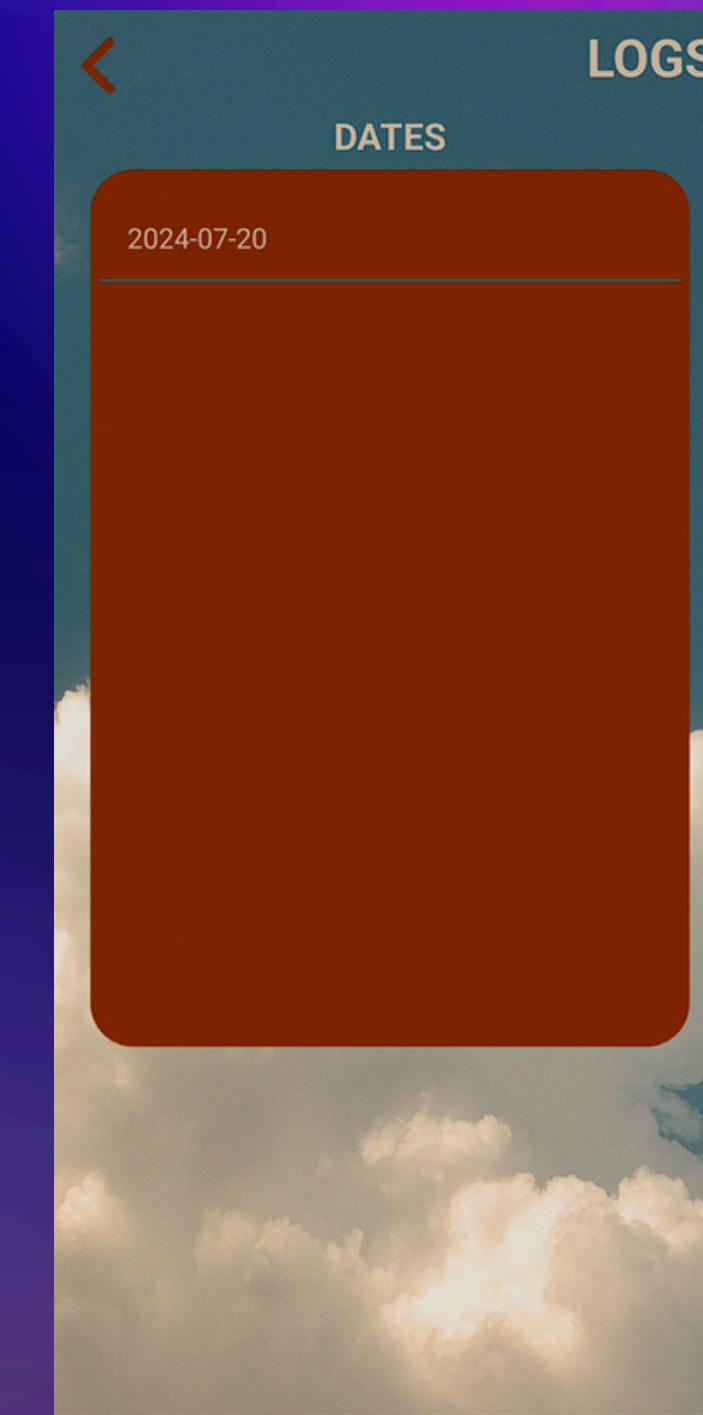
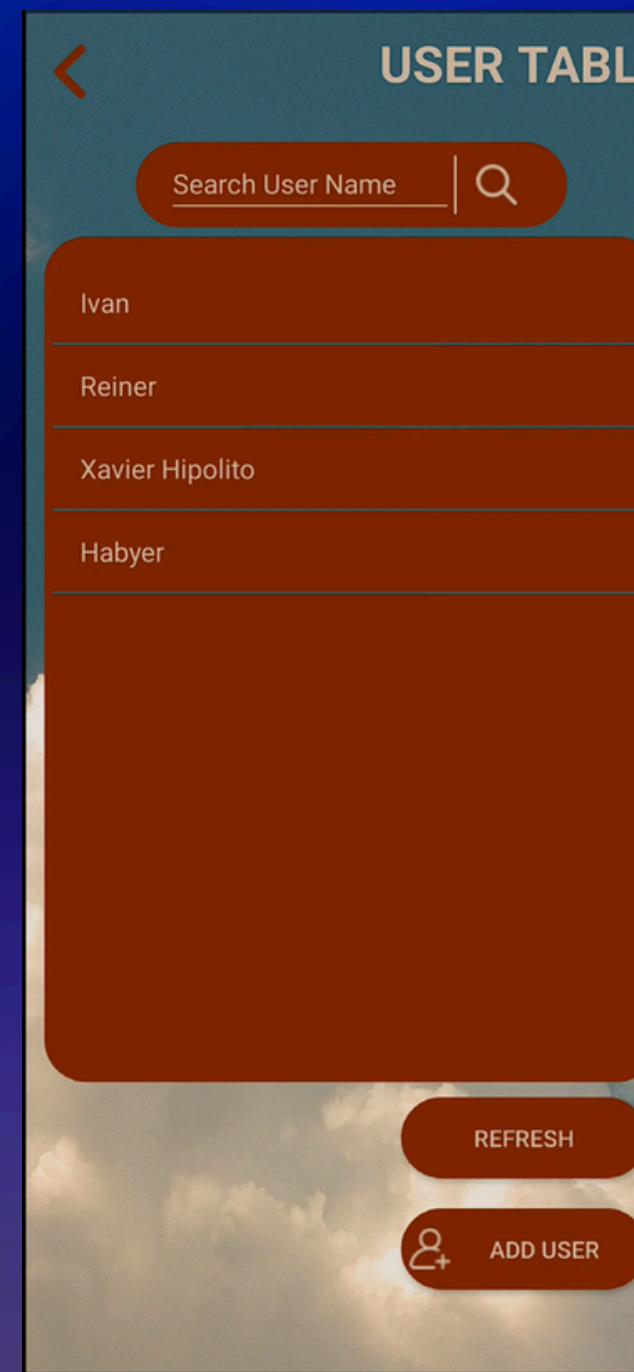
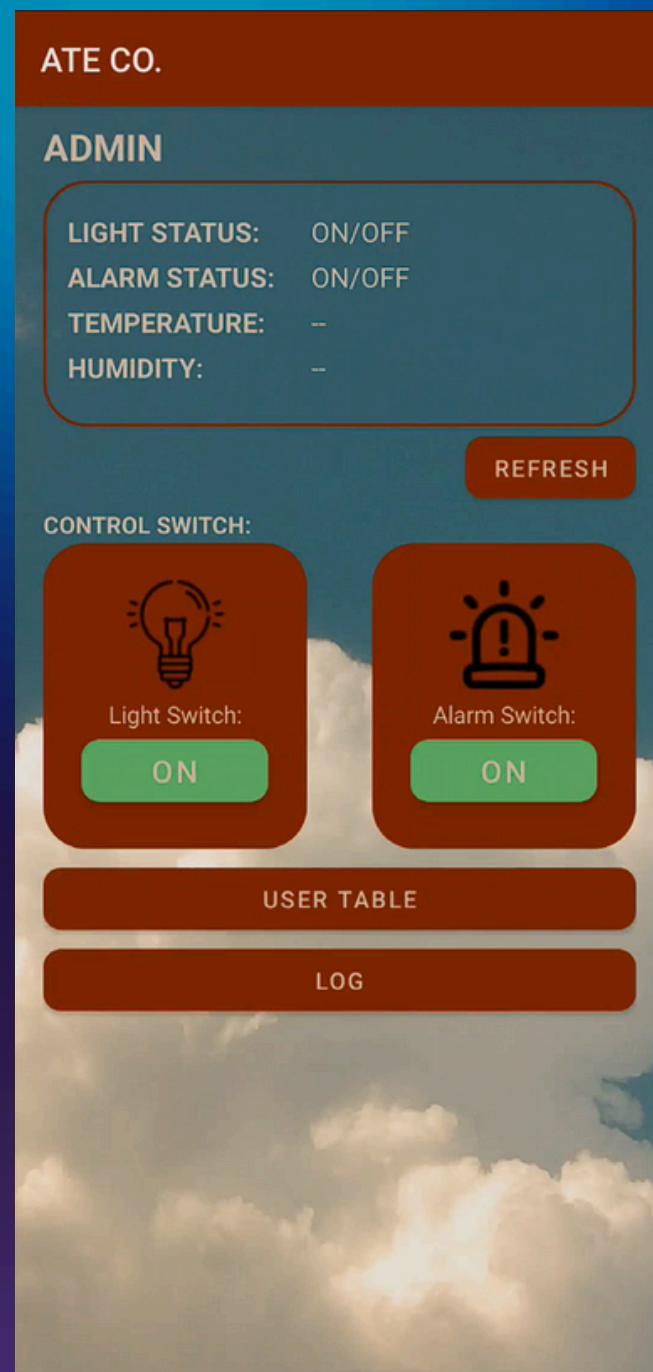


FLOWCHART

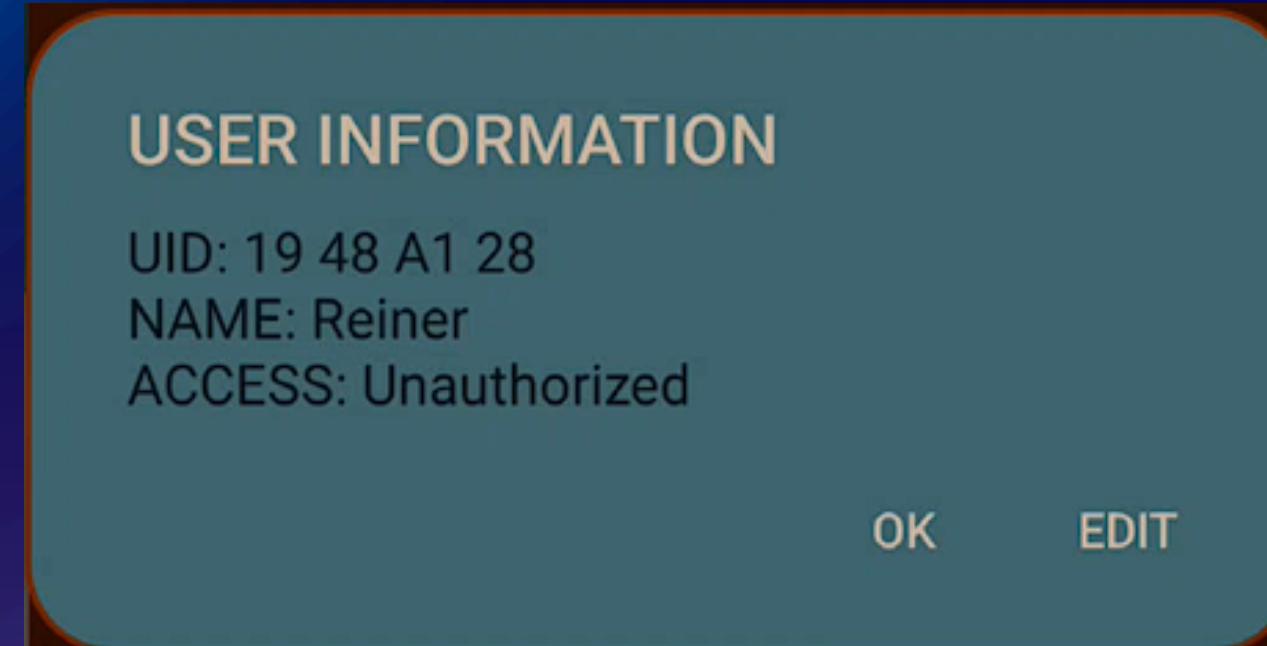
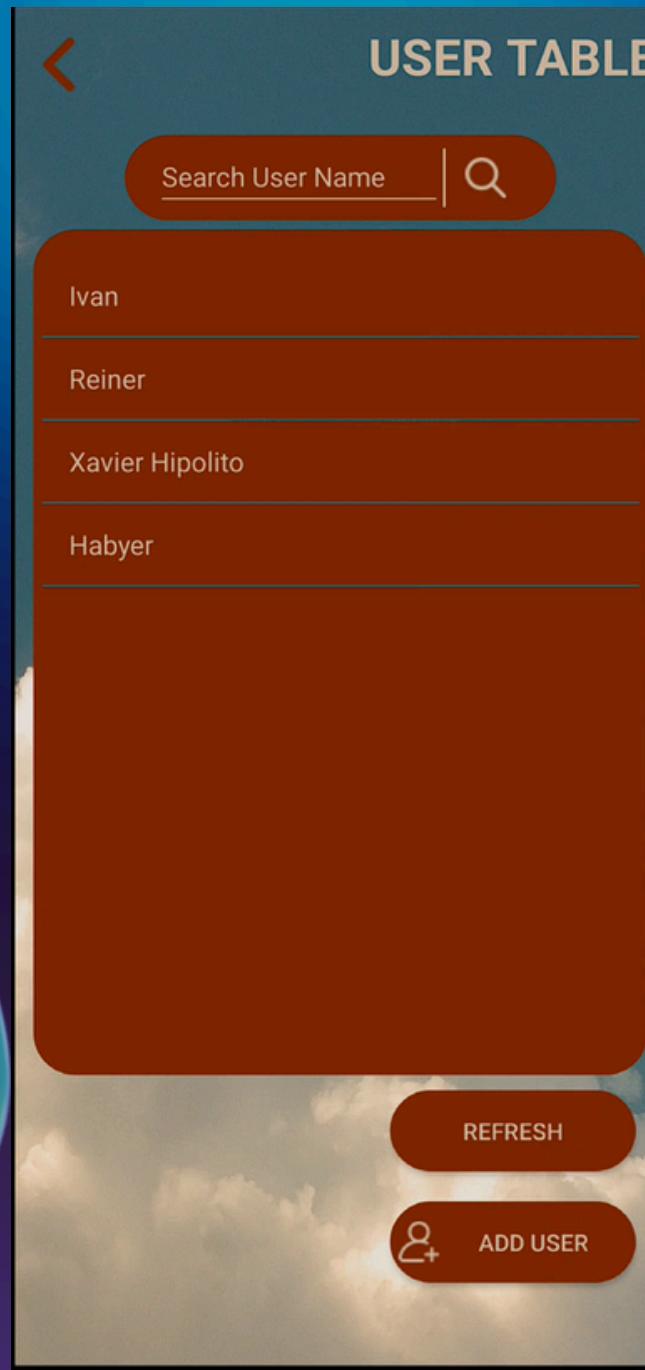
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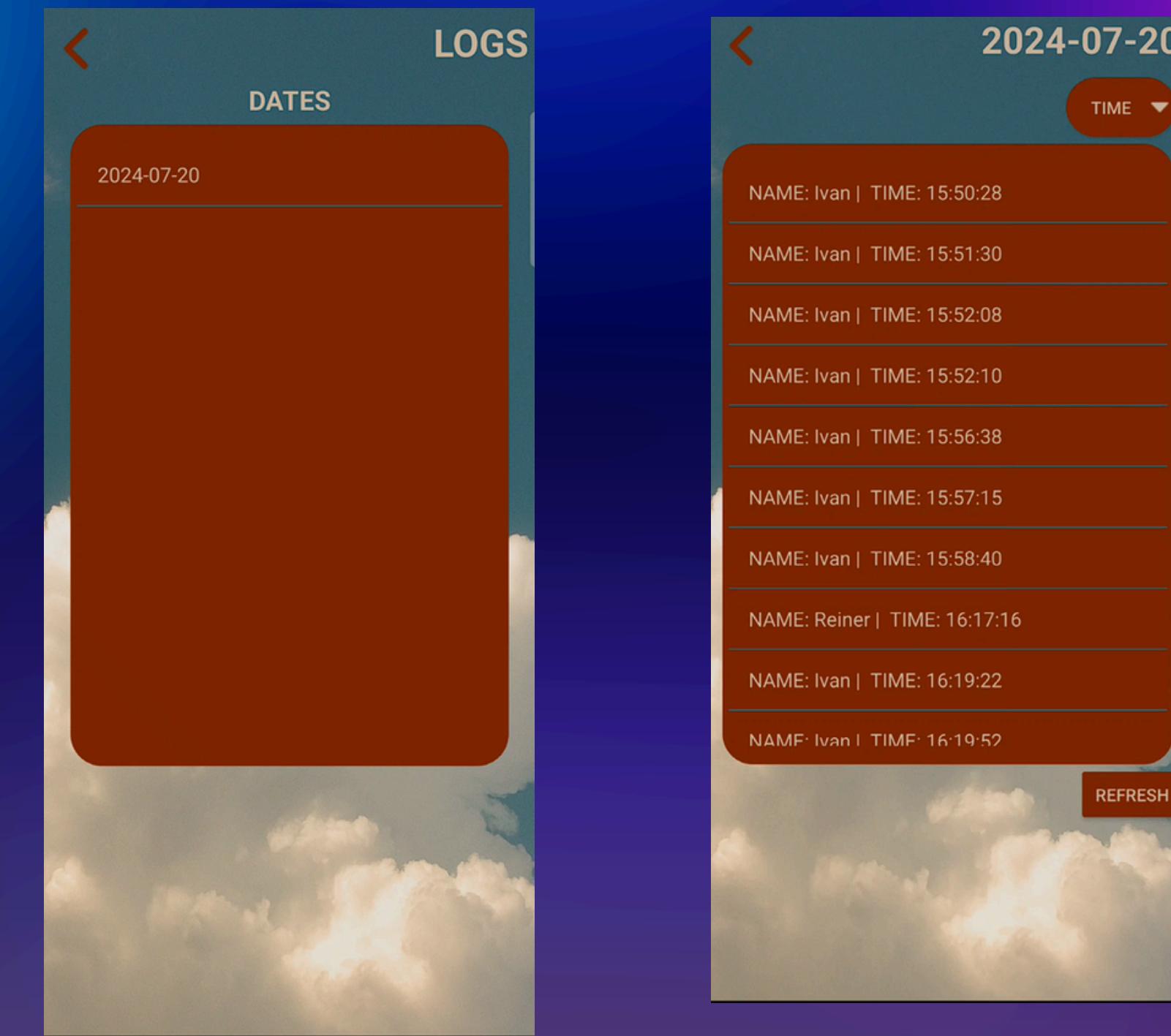
MOBILE APPLICATION DEMONSTRATION



MOBILE APPLICATION DEMONSTRATION



MOBILE APPLICATION DEMONSTRATION



PROJECT COST BREAKDOWN



Item	Quantity	Cost
Wemos D1	1	PHP 150
Arduino Uno	1	PHP 159
RFID Module	1	PHP 129
DHT Sensor	1	PHP 125
Relay Switch	1	PHP 79
LEDs	10	PHP 25
Buzzer	1	PHP 50
Jumper Wires	30	PHP 70
Breadboard	1	PHP 25
Jumper Wires	1	PHP 29

Total Cost = PHP 841

GANNT CHART



Smart Access Control and Monitoring System using RFID and IoT Technology					TIMELINE												
Task Name:	Days to Complete:	Start:	Finish:		JULY												
					10	11	12	13	14	15	16	17	18	19	20	21	22
DEVELOPMENT	11 days				1	2	3	4	5	6	7	8	9	10	11	12	13
Review of Initial Project	1	7/10/2024	7/10/2024														
Integrating the RFID sensor	1	7/10/2024	7/10/2024														
Identifying pins Wemos and Arduino	7	7/10/2024	7/16/2024														
Creating the Mobile Application	7	7/10/2024	7/16/2024														
Creating functions	7	7/13/2024	7/19/2024														
OOP Integration	7	7/13/2024	7/19/2024														
Connecting the application to the database	7	7/13/2024	7/19/2024														
Finalizing circuit and mobile app	1	7/20/2024	7/20/2024														
DOCUMENTATION	2 days																
Creating the Gantt Chart	1	7/19/2024	7/19/2024														
Compiling info for Powerpoint	1	7/19/2024	7/19/2024														
Finalized flowchart	1	7/19/2024	7/19/2024														
Creating the circuit diagram	1	7/20/2024	7/20/2024														
Final revisions for PPT	1	7/20/2024	7/20/2024														
Finishing documentation	1	7/20/2024	7/20/2024														
FINALIZATION	1 day																
Presentation Day	1	7/22/2024	7/22/2024														

MEMBERS



Reiner
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Ivan
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Jason
Miran



Xavier
Hipolito

THANK YOU

