SIMULATED SMART HOME SYSTEM

AGENDA

- AIM & Objectives
- Problem Statement
- Proposed Work Procedure
- Progress Status
- Work Flow
- Components
- Schema
- System Simulated
- Summary

AIM

To simulate a smart home system using ESP32 technology and integrate it with an existing mobile application interface for control and monitoring.

OBJECTIVES

- Develop a virtual environment representing a typical home with controllable devices.
- Simulate communication between virtual ESP32 hardware and the existing mobile application interface.
- Explore the usability and effectiveness of the simulated smart home system within the context of the pre-existing mobile application.
- Provide insights into the feasibility and functionality of real-world implementation using an established interface.

MOTIVATION

- Exploring the potential of smart home technology within the context of existing mobile applications.
- Understanding the interaction between simulated hardware and an established user interface.
- Simulating scenarios and testing functionalities to inform potential real-world integrations.

PROBLEM STATEMENT

- Limited access to physical hardware components for testing and experimentation.
- Challenges in prototyping and iterating smart home solutions within the constraints of existing interfaces.
- Need for cost-effective and accessible alternatives to real-world deployment while utilizing established mobile applications.

Alaa Amr

Karim Ashraf

Yousef Mohamed

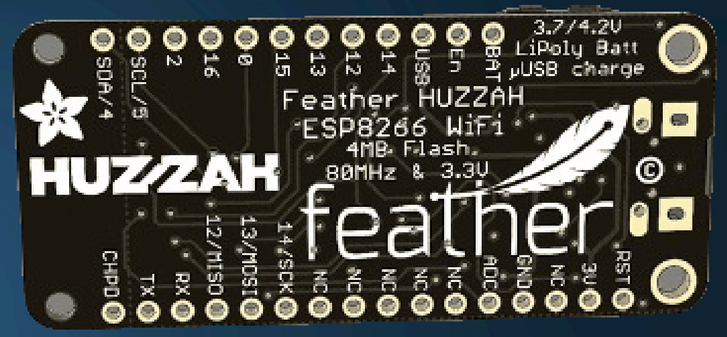
PROPOSED WORK PROCEDURE

- Virtual Environment Design and Hardware Simulation (Alaa)
- Board Building and Hardware Assembly (Alaa)
- Coding and System Implementation (Yousef & Karim)
- Interface Integration (Karim & Yousef)
- Usability Testing and Documentation (Karim)

WORK FLOW

1. VIRTUAL ENVIRONMENT DESIGN
2. HARDWARE SIMULATION
3. INTERFACE INTEGRATION
4. USABILITY TESTING
5. DOCUMENTATION

COMPONENTS



Esp32

Servo

Lithium Batteries

LCD 16X2

COMPONENTS

Moisture Sensor

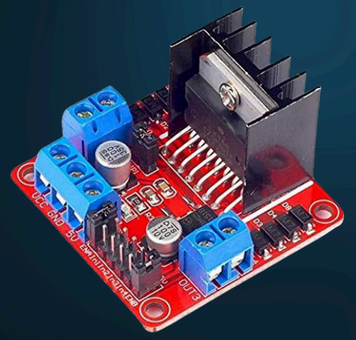
Buzzer

IR Sensor

Gas Sensor

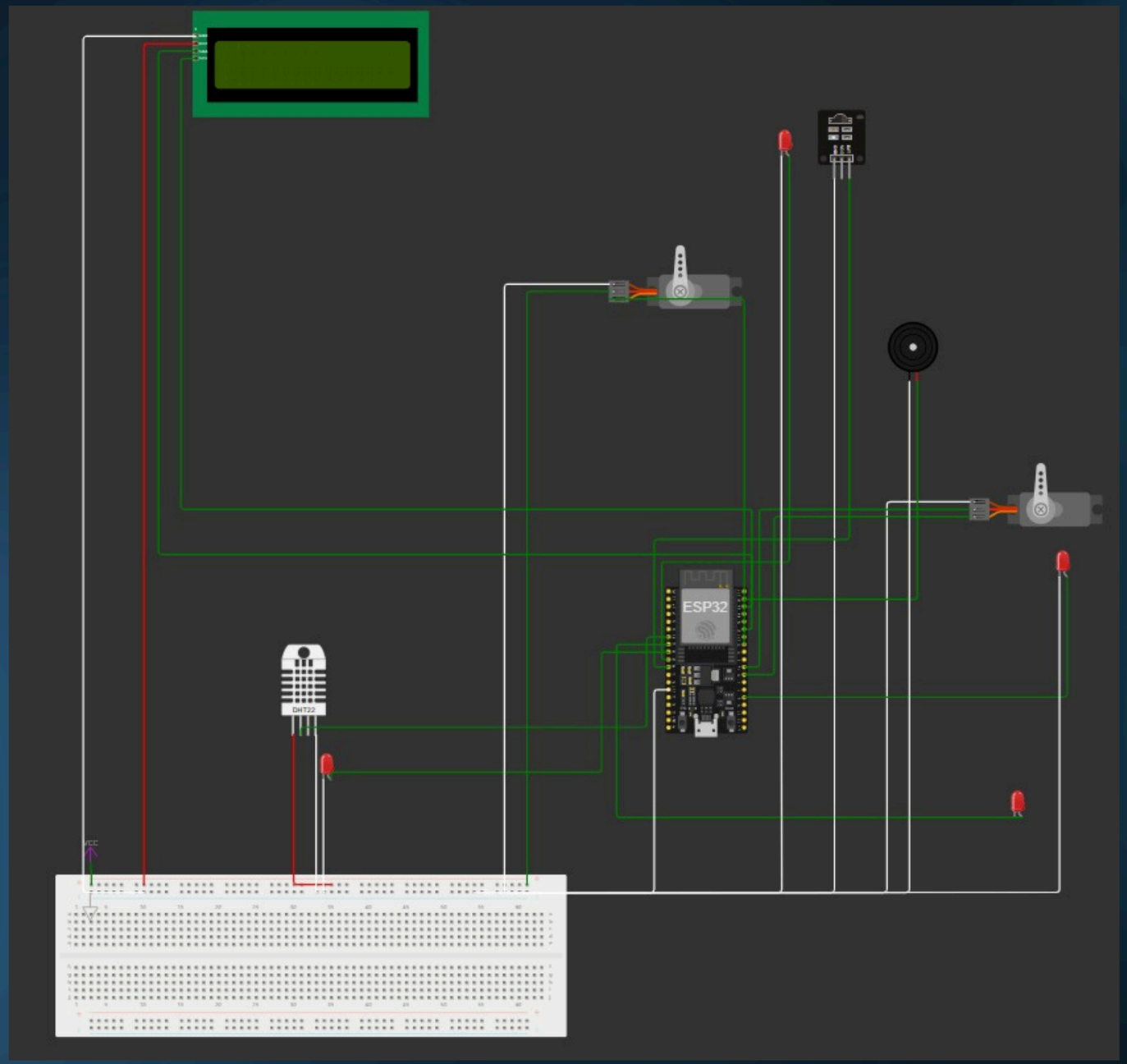
DC Motor

LED



H-Bridge

DHT22



SCHEMA

SYSTEM SIMULATION

CONCLUSION

- The project aims to simulate a smart home system using ESP32 and integrate it with an existing mobile application interface.
- Motivated by the need for cost-effective and accessible alternatives to real-world deployment while utilizing established interfaces.
- By simulating scenarios and interactions, the project seeks to provide valuable insights into the feasibility and functionality of smart home solutions within the context of pre-existing mobile applications.