

SMART HOME AUTOMATION SYSTEM

Efficient Use of Household Resources.



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What home automation is
and the efficient utilization
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Why the project is worthy
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PROJECT SCOPE

Details of what must be,
has been and needs to be
done





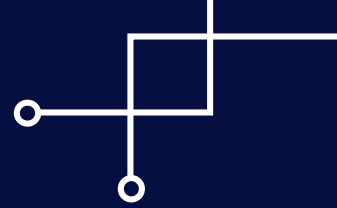
ABOUT PROJECT

The project aims to provide an IoT-based solution for efficient utilisation of household resources such as electricity and water in Malawi. The problem of power scarcity and under utilization of water is a big problem here in Malawi hence the proposed solution seeks to improve the comfortability of living in urban homes while offering an intelligent platform for monitoring and controlling consumption of household amenities.



PROJECT BACKGROUND

The big picture behind home automation:/ Efficient use of household resources.



Electrical energy remains one of the most expensive utilities in a Malawian household. Thus the solution proposed addresses the efficient use of such a resource.

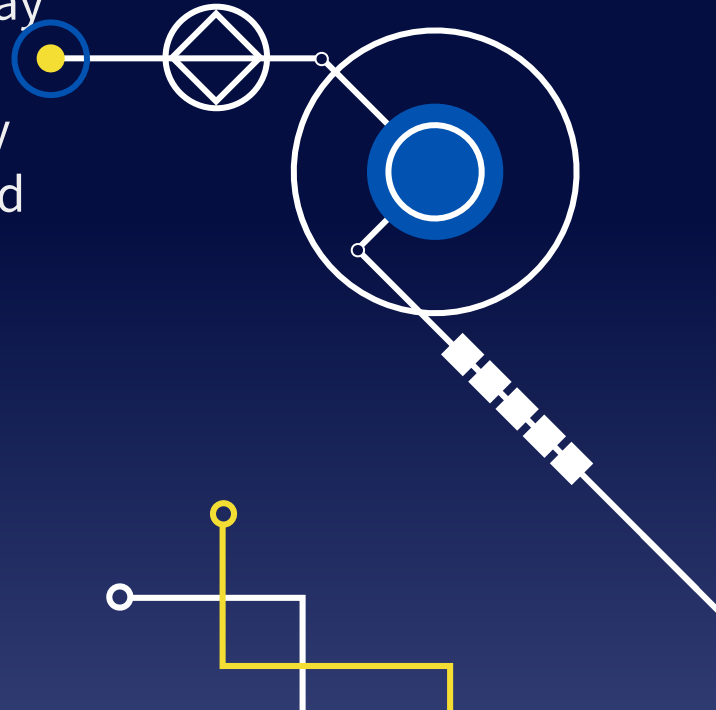


Clean water is such a vital component for sustainable development and equally important is implementation of water management policies at a household level.



CORE OF HOME AUTOMATION.

Home automation is the idea of digitizing everyday activities within the home and being able to control, manage and monitor them electronically without manual mechanical intervention involved in conducting routine/repetitive tasks.





02

PROJECT RELEVANCY

The significance of the project in a Malawian context

ELECTRICITY CONSUMPTION





UNIQUENESS

Currently known and applied strategies for achieving energy efficiency have included:

- Target load shedding
- Increased energy tariffs

Our proposed solution

- offers a user-centric utility usage policing scheme unlike those imposed by service providers.
- Allows for management of utilities at a microeconomic household scale



03

TECHNOLOGY

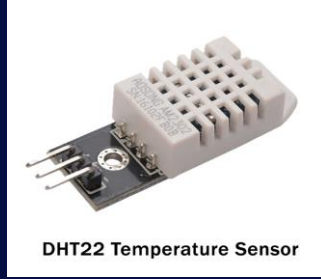
Technical Specifications of Product

LAYERED TECHNICAL OVERVIEW

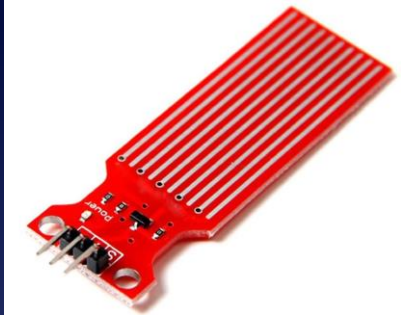
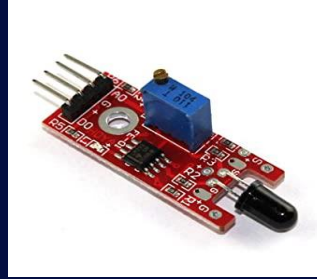


PERCEPTION CONTROLLER APPLICATION BUSINESS

PERCEPTION LAYER



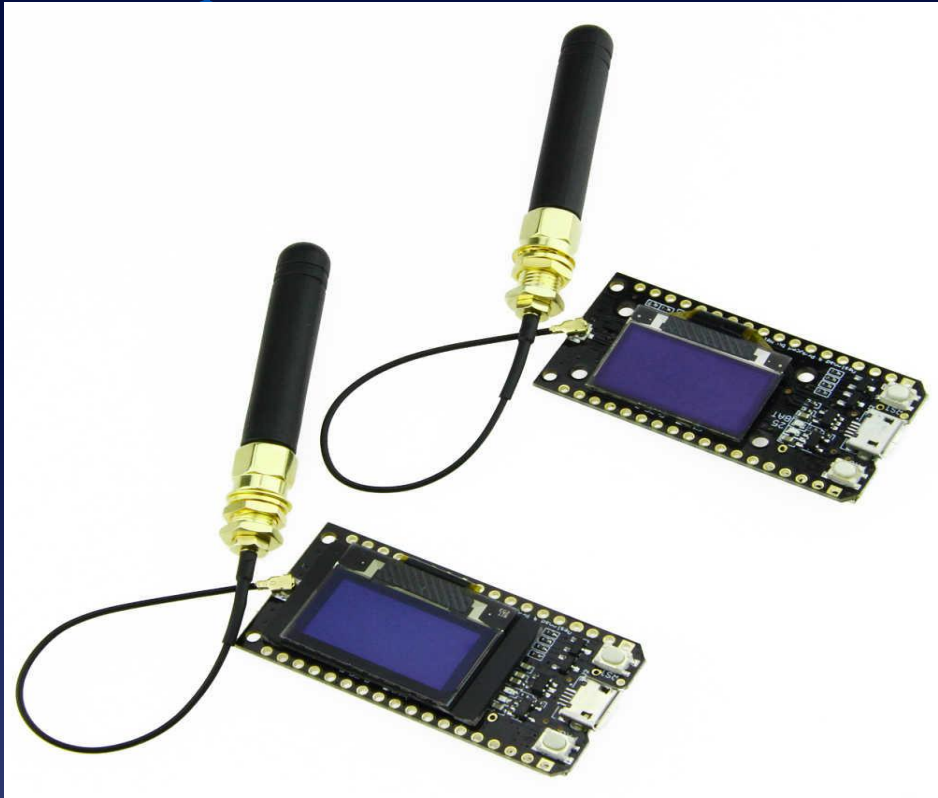
DHT22 Temperature Sensor



Left to Right:

- Light Dependent Resistor
- DHT22 Temperature & Humidity Sensor
- Flame/Snoke Detection Sensor
- Passive Infrared (PIR) Motion Detection Sensor
- Water Leakage/Immersion Sensor
- Gas Sensor

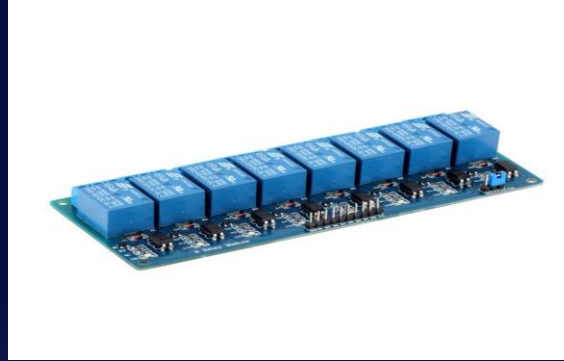
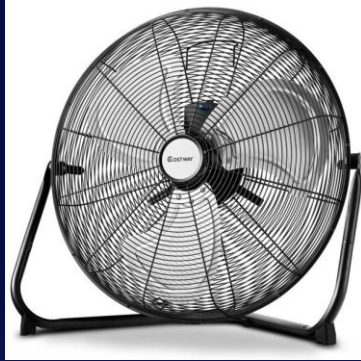
CONTROLLER LAYER



LILLY GO'S TTGO LORA32 868 MHZ
V1.3

- Wi-Fi and Bluetooth Board

APPLICATION LAYER



Left to right:

- Security lights.
- Air circulation control fan.
- 8 channel relay power controller.
- Room light bulb.
- Piezoelectric buzzer- security alert.

BUSINESS LAYER



android



Flutter



Firebase



04

PROJECT SCOPE

Product Features & Progress Report



Schematic Design

Circuit Assembly

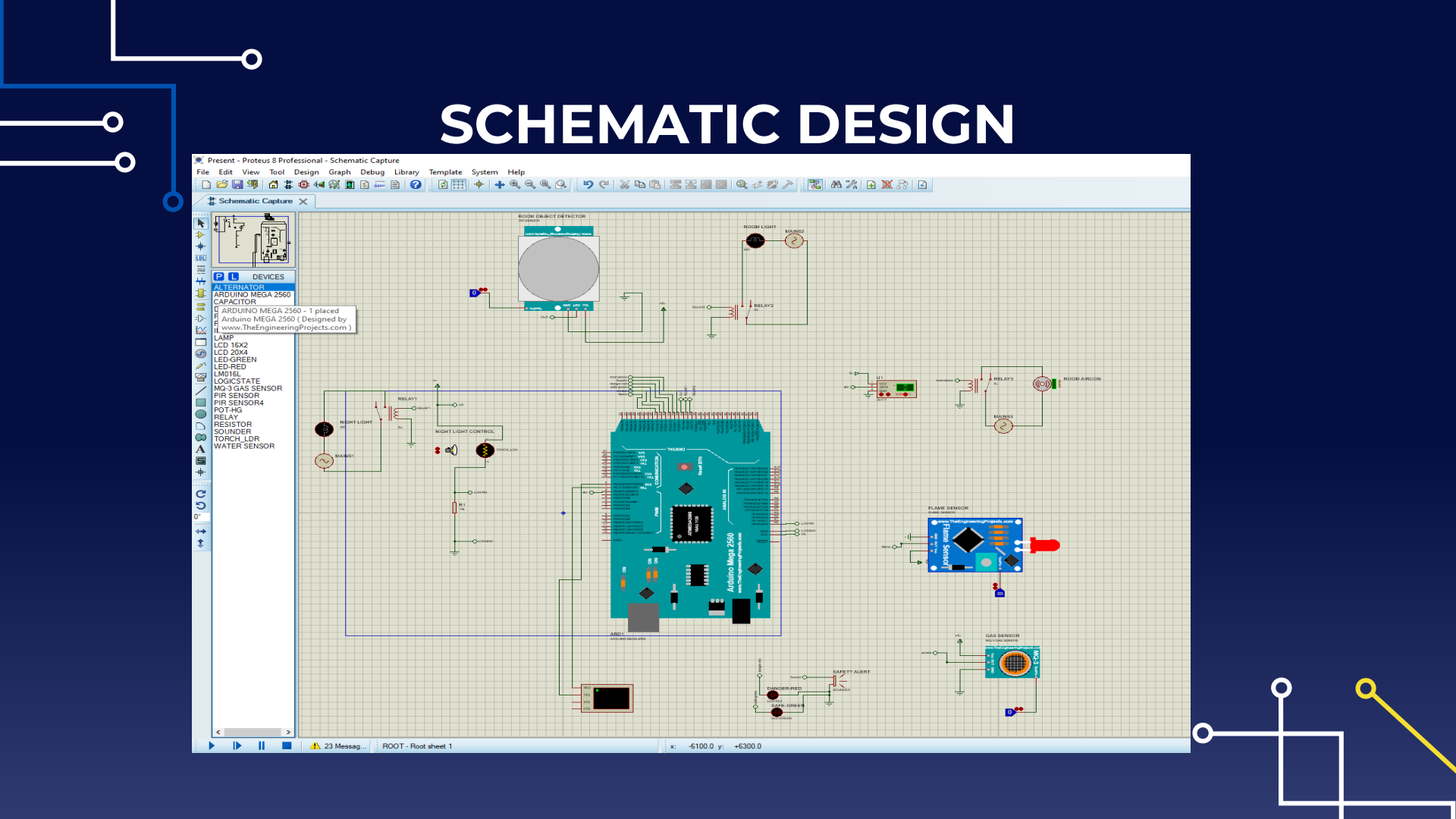
User Application Development

Firebase Integration

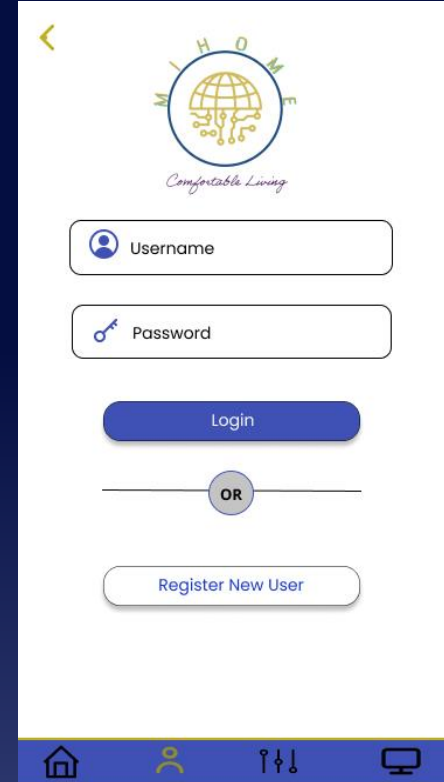
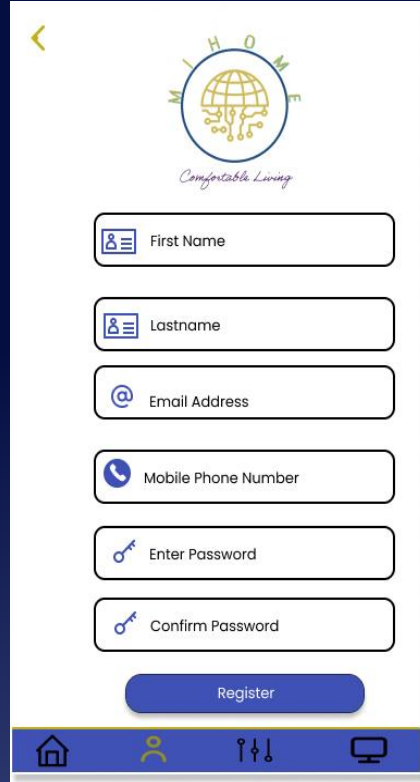
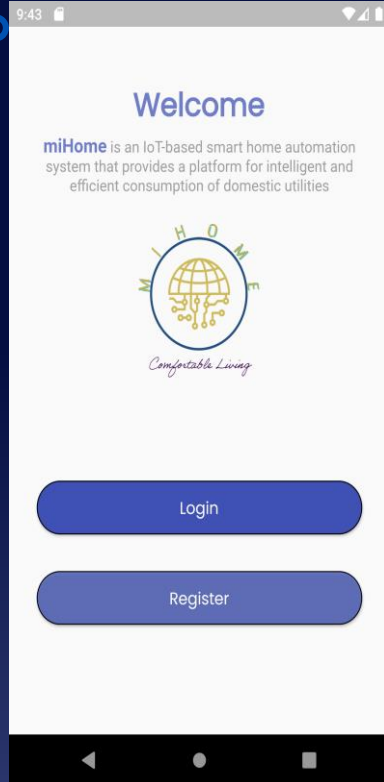


SCHEMATIC DESIGN

The screenshot displays the Proteus 8 Professional Schematic Capture interface. The central focus is an Arduino Mega 2560 microcontroller, which is connected to a variety of components. On the left, a power supply section includes a 5V regulator and a 100uF capacitor. The microcontroller is connected to a PIR sensor, an MQ-3 gas sensor, and a flame sensor. It also controls a relay for a room light, a relay for a room fan, and a buzzer for a safety alert. A power supply section with a 5V regulator and a 100uF capacitor is shown. The schematic is titled "ROOT - Root sheet 1" and has a coordinate range of x: -6100.0 y: +6300.0.



Android App Design & Development





***EAST OR WEST, SMART
HOME IS THE BEST.***

-wiseman-