IOT ENABLED GAS DETECTION AND TEMPERATURE MONITORING SYSTEM

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INTRODUCTION

In today's world, safety and environmental awareness are crucial. The IoT based system detects gas leaks and monitors temperature in real-time, keeping you safe and optimizing efficiency. It uses sensors and data analysis to give you instant alerts and valuable insights, preventing problems and maintaining ideal conditions in any environment.

BENEFITS AND APPLICATIONS

- This system can be implemented in industrial facilities, commercial buildings and residential homes
- Enhanced Safety
- Improved Efficiency
- Instant Alerts
- Data-Driven Decisions

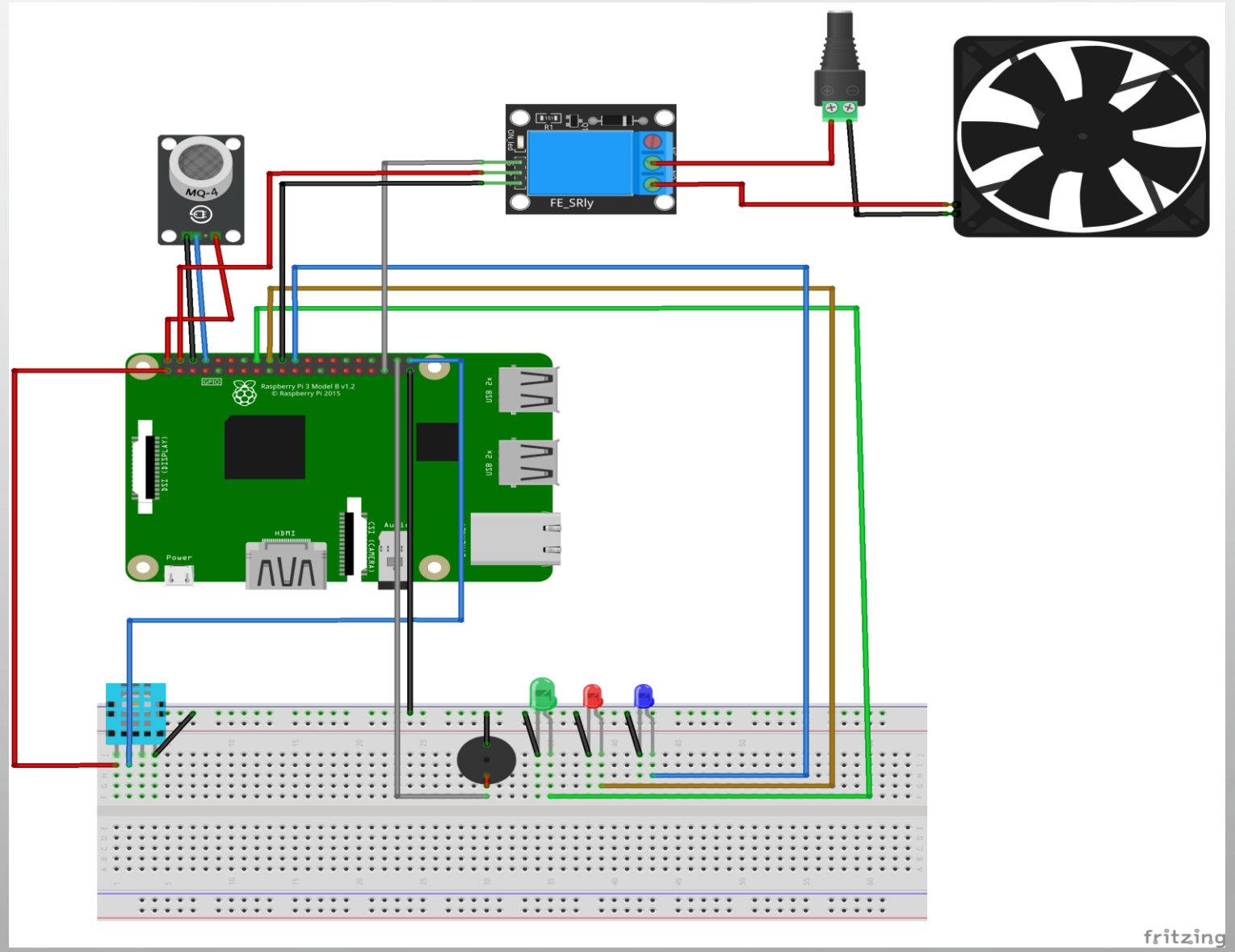
OBJECTIVES

- Design and develop an IoT-based gas leakage detection & temperature monitoring system.
- Integrate alerting mechanisms for timely notification.
- Enable remote monitoring and control of the system.

SYSTEM COMPONENTS

- Raspberry Pi
- MQ4
- DHT11
- Fan
- Buzzer
- Led indicators
- Web Application

SCHEMATIC

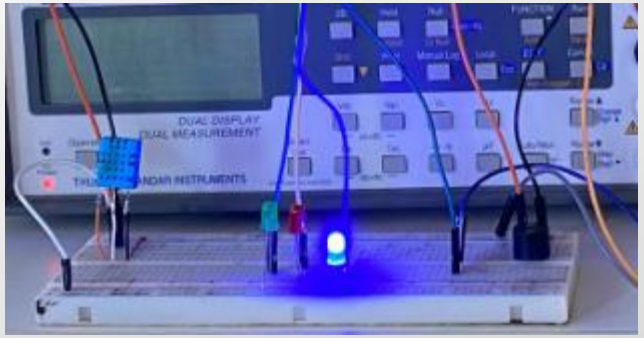

MQ-4
FE_SRly
Raspberry Pi 3 Model B v1.2
© Raspberry Pi 2015
GPIO
HDMI
Power
fritzing

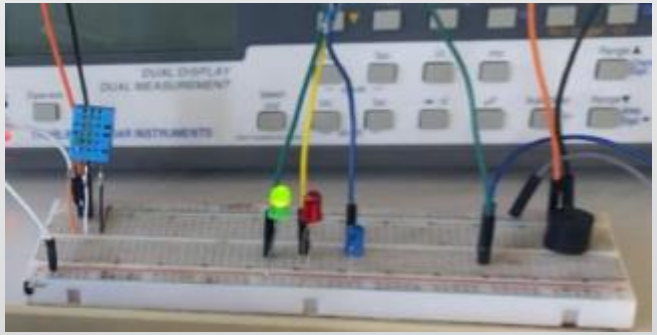
PROCEDURES

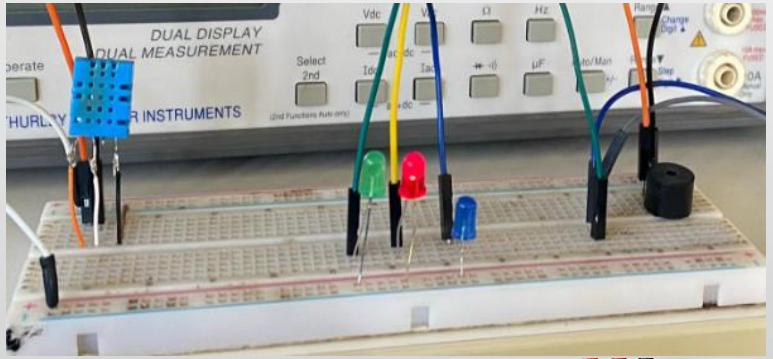
The design process of the system will be implemented into four phases:

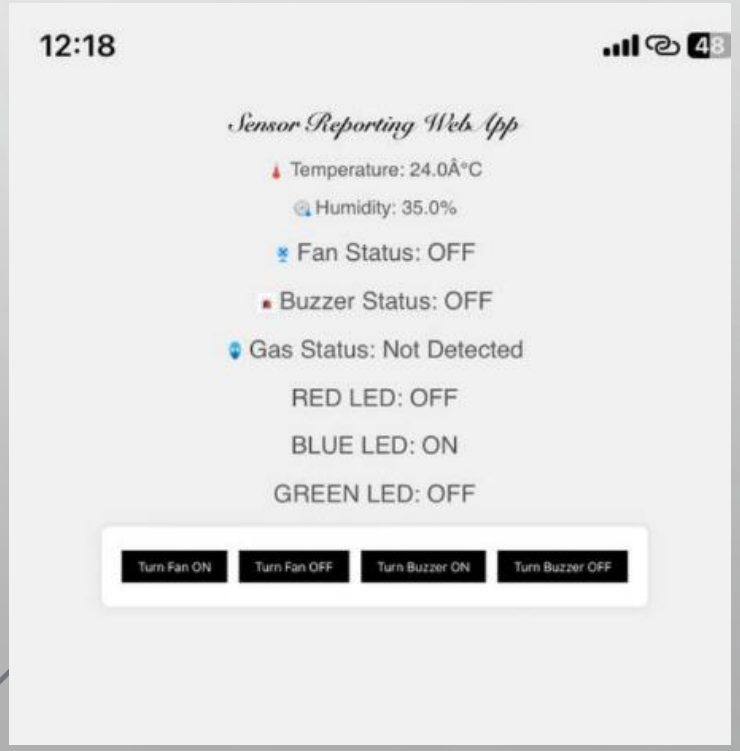
- **Phase 1-** This involved purchase of project components from suppliers.
- **Phase 2-** Testing all sensors and generating codes.
- **Phase 3:** Loading the respective codes onto the microcontroller for real time testing of the project
- **Phase 4:** Assembling and packaging of the project

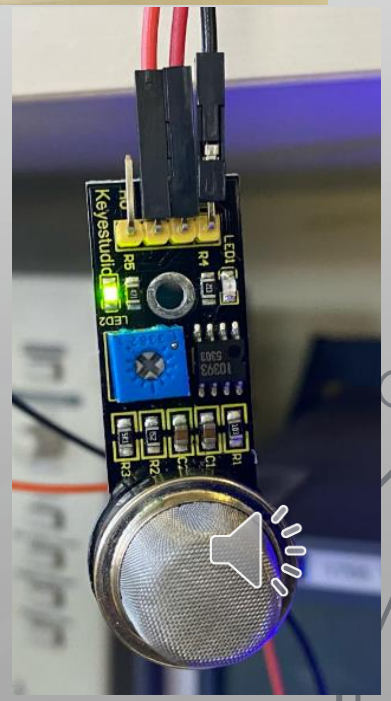
RESULTS






DUAL DISPLAY
DUAL MEASUREMENT
INSTRUMENTS


12:18
Sensor Reporting Web App
Temperature: 24.0Â°C
Humidity: 35.0%
Fan Status: OFF
Buzzer Status: OFF
Gas Status: Not Detected
RED LED: OFF
BLUE LED: ON
GREEN LED: OFF
Turn Fan ON
Turn Fan OFF
Turn Buzzer ON
Turn Buzzer OFF


Keyestudio

SWOT ANALYSIS

- **Strengths**
  - Remote monitoring & control
  - IoT integration
- **Weakness**
  - Power Dependency
  - Potential for false alarms
- **Opportunities**
  - Integration with other systems
  - Educational Tool
- **Threats**
  - Cyber security risks

CONCLUSION

The IoT-based gas detection and temperature monitoring system offers a powerful solution for real-time environmental monitoring. By providing enhanced safety, improved efficiency, and valuable data insights, this system has the potential to revolutionize various applications.