



DAYANANDA SAGAR COLLEGE OF ENGINEERING

(An Autonomous Institute affiliated to VTU, Belagavi – 590018, Approved by AICTE & ISO 9001:2015
(Certified) Accredited by National Assessment & Accreditation Council (NAAC) with 'A' grade & NBA



Project Title: Brake Failure Indicator

Submitted by

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Brake Failure Indicator





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Brief Overview

- The system is designed to ensure the safety of drivers and passengers by constantly monitoring the condition of the vehicle's braking system.
- Our system includes soil moisture sensor, node MCU(wifi-module),LCD, Motor,Relay
- With this system, drivers can feel secure in the knowledge that their brakes are functioning properly, reducing the risk of accidents and ensuring a safer driving experience.

Components

1. Moisture sensor

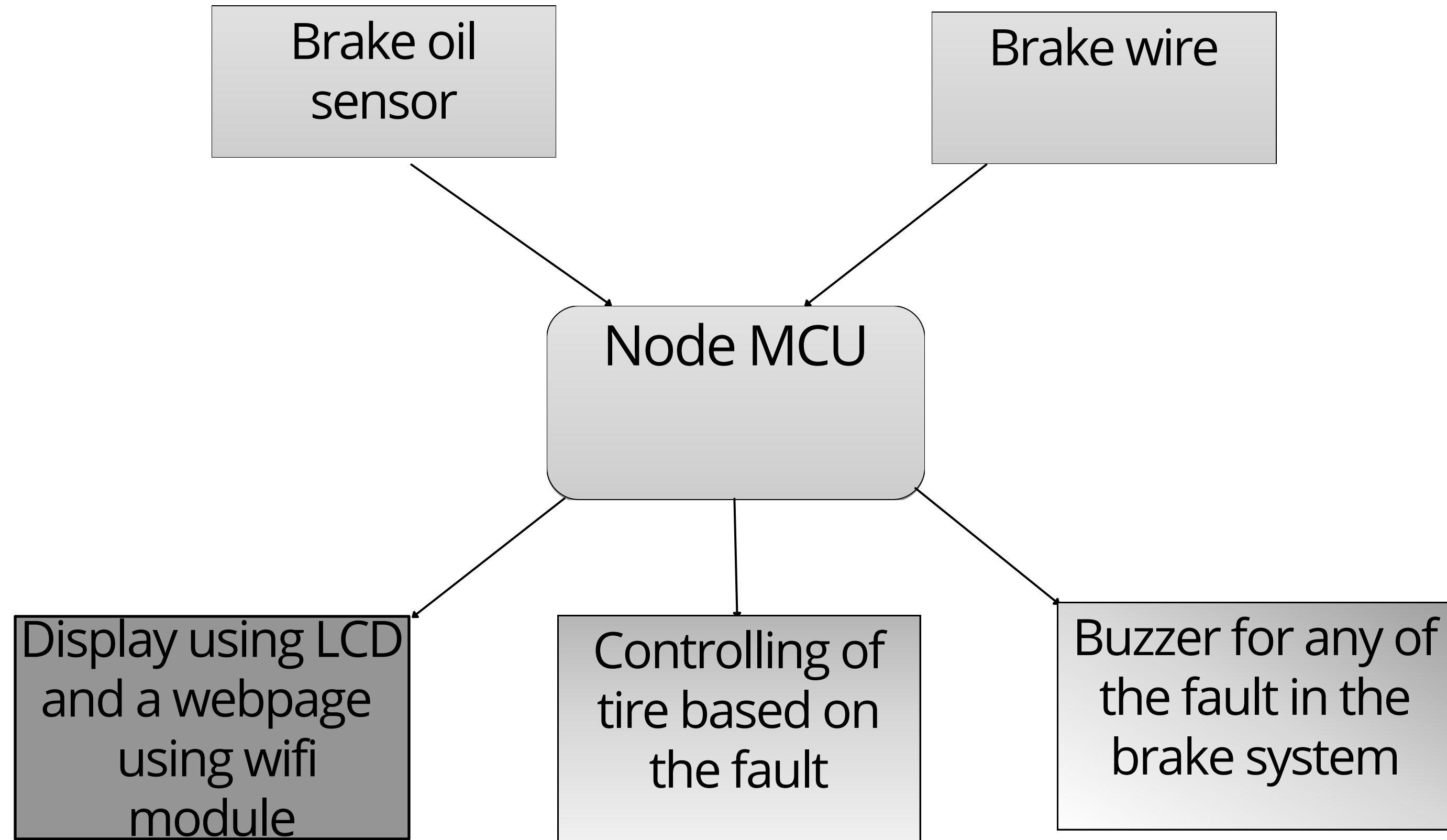
2. Inter-Integrated circuit (I2C)

3. Node MCU

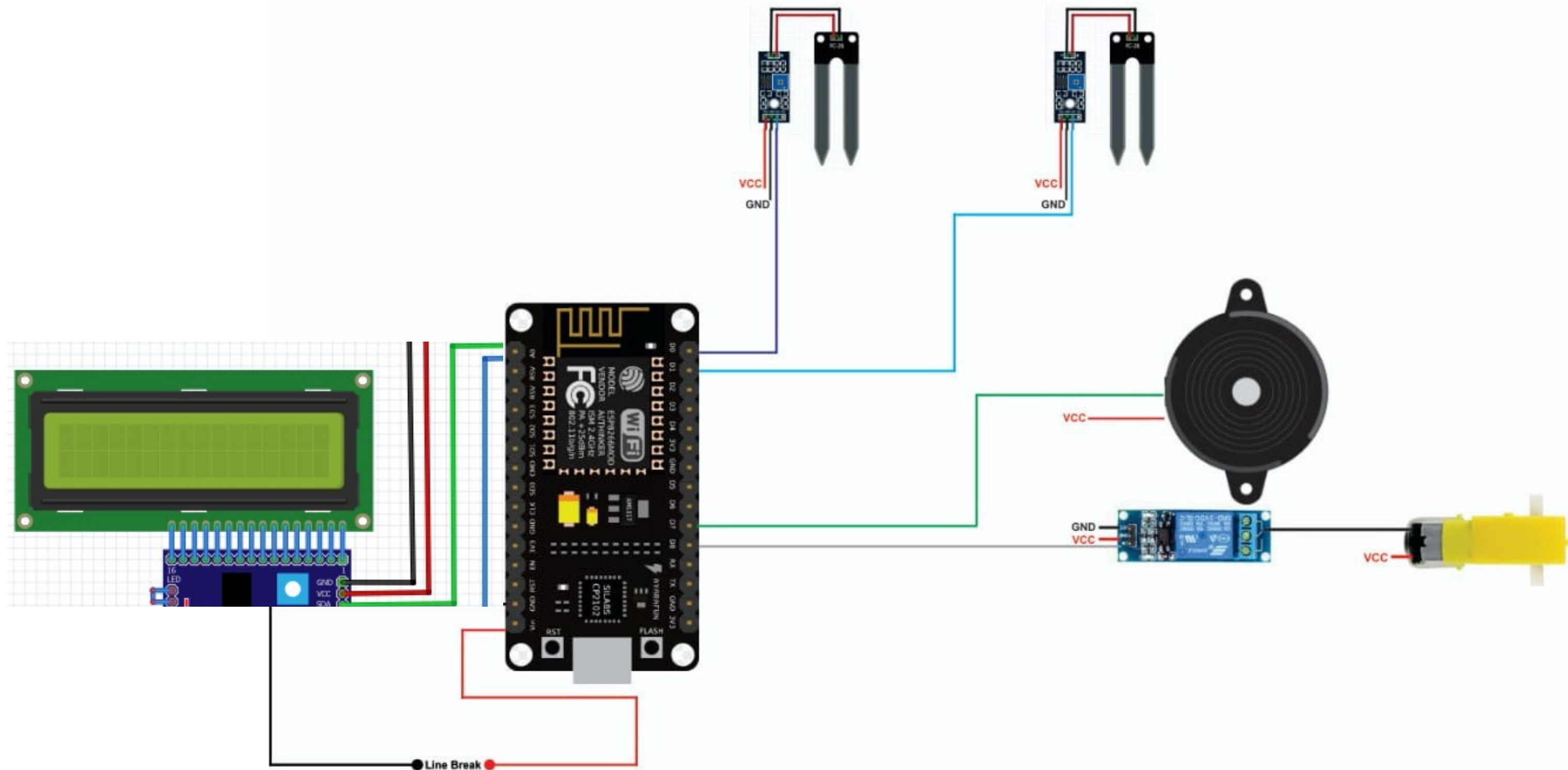
4. LCD

5. Relay Module

Block Diagram

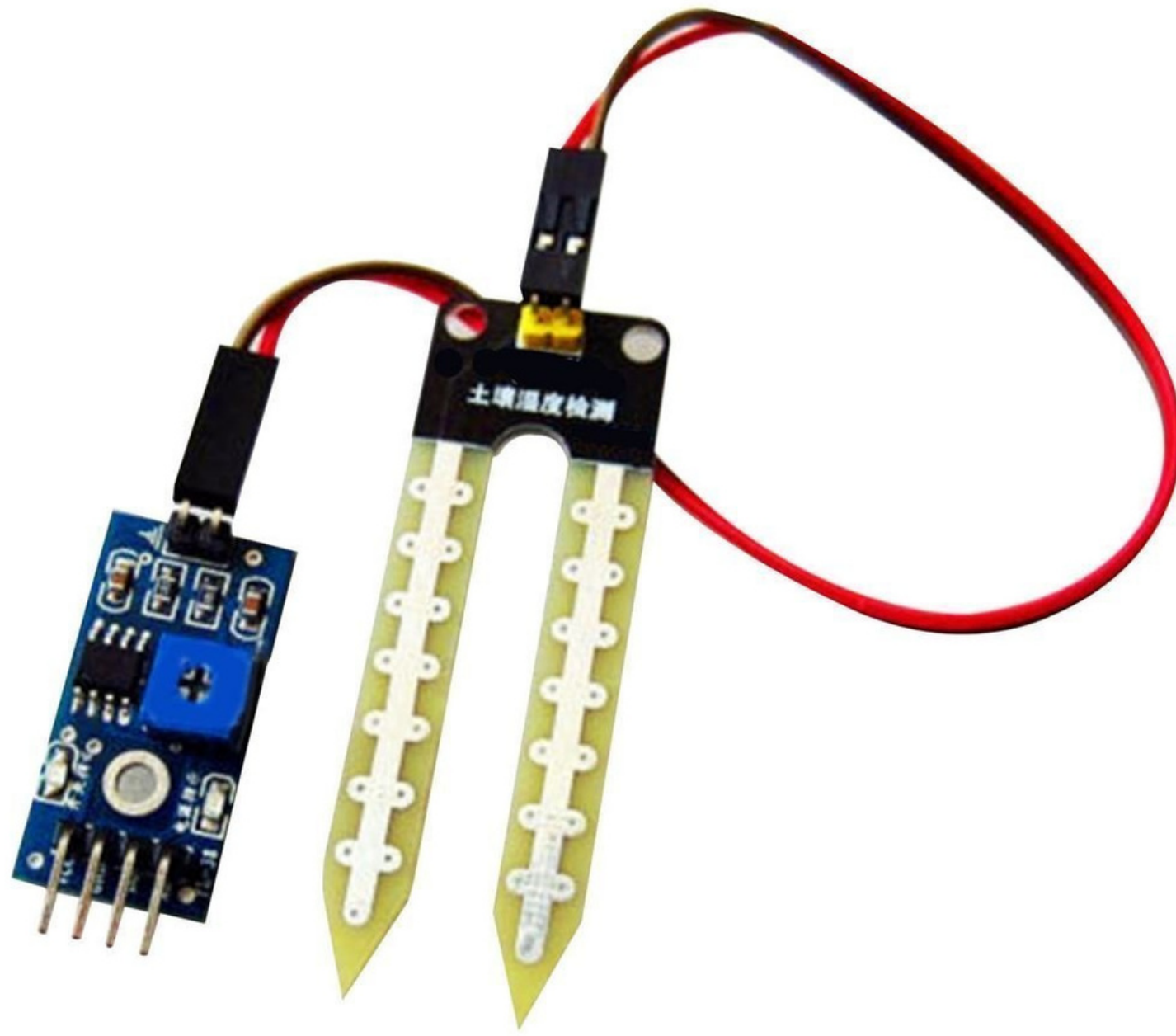


Circuit Diagram



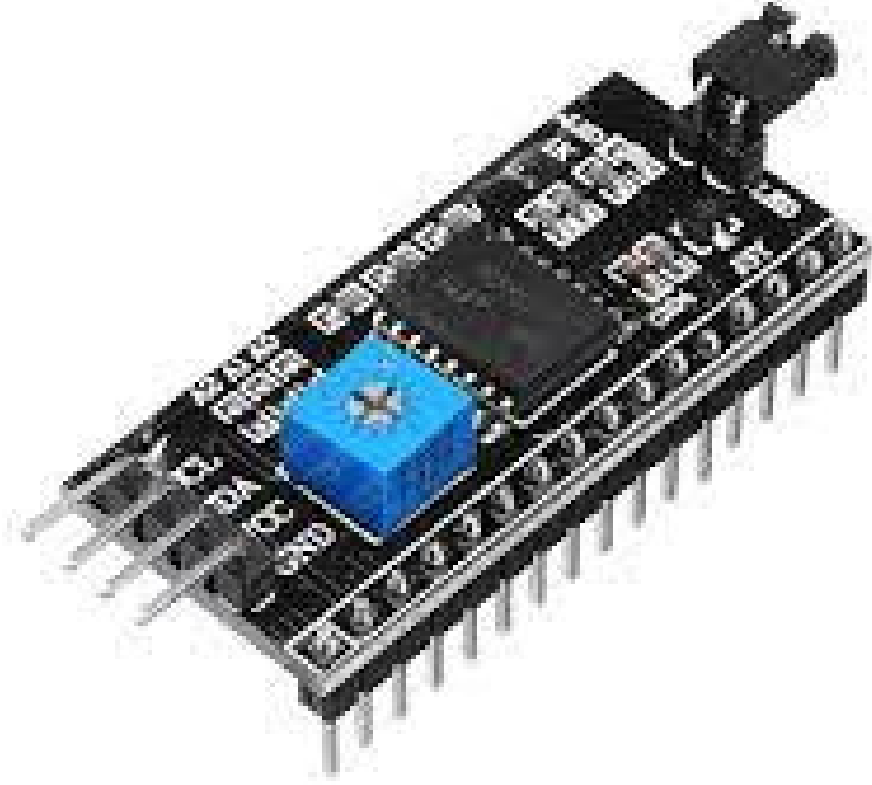
Components

Soil Moisture Sensor



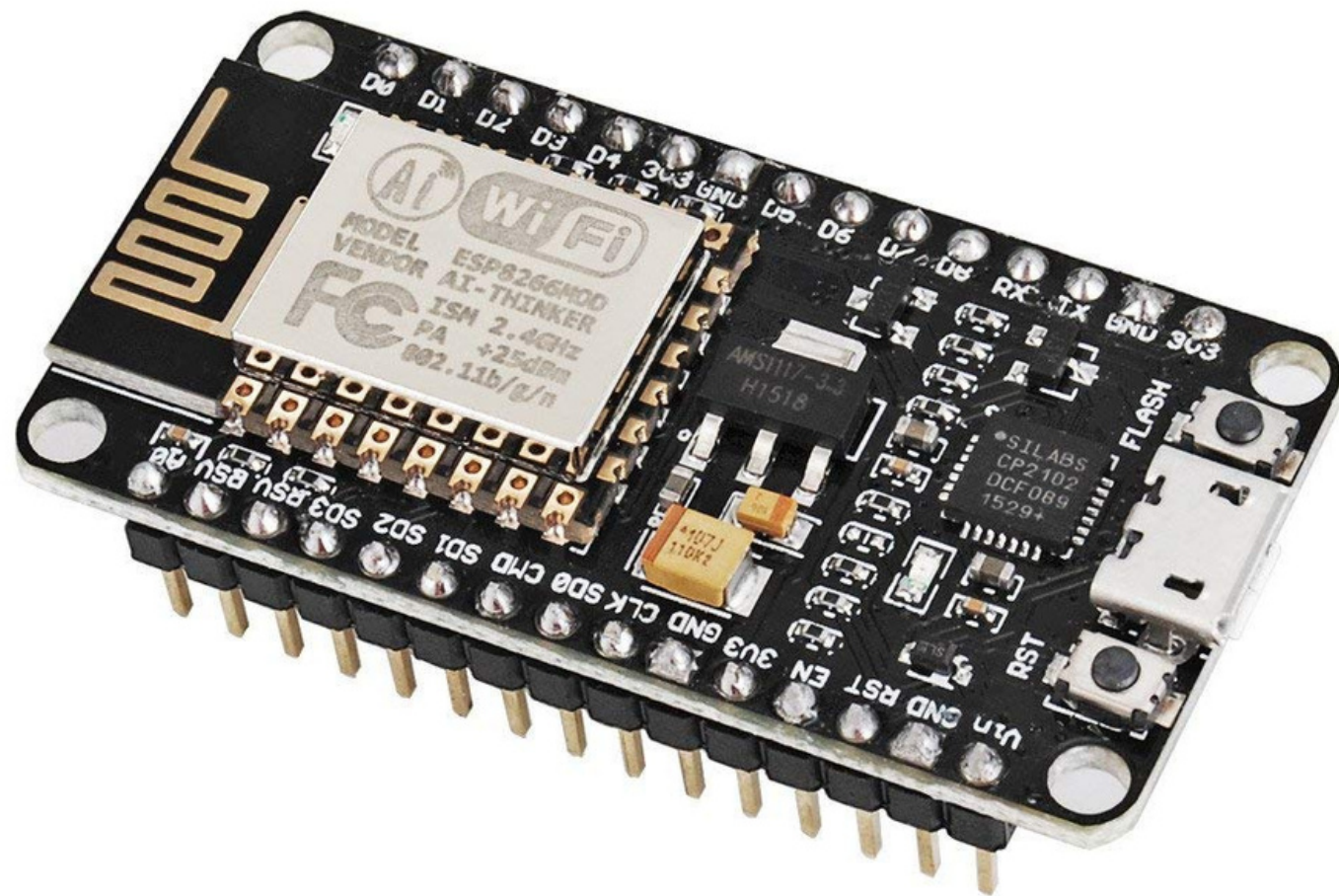
- Soil Moisture sensor is used to monitor the level of brake fluid in a vehicle's brake system.
- The main purpose of the brake fluid level sensor is to alert the driver when the brake fluid level drops below a certain threshold
- Typically located within the brake fluid reservoir, which is usually mounted on the master cylinder.

Inter-Integrated Circuit(I2C)



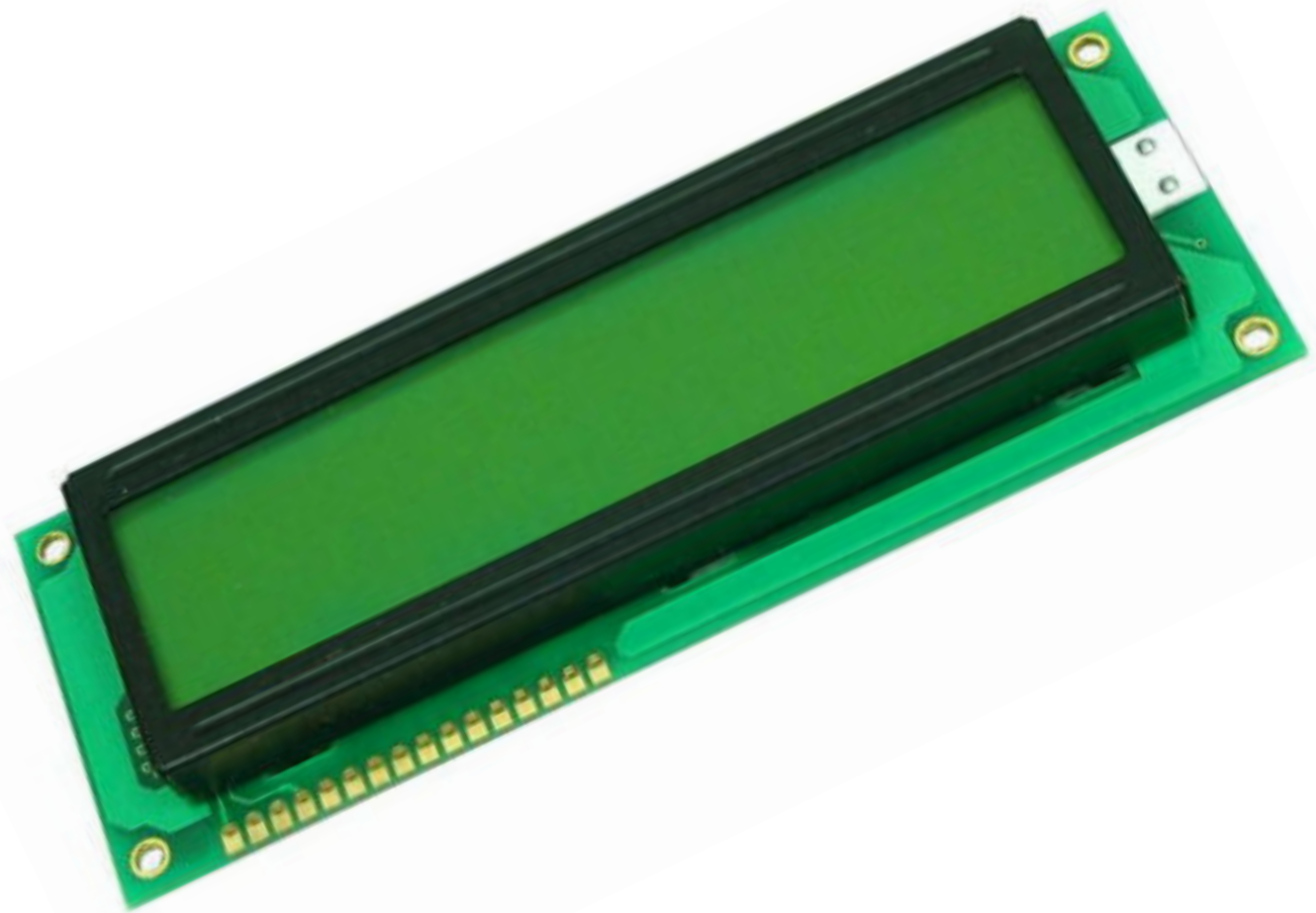
- I2C, which stands for Inter-Integrated Circuit, is a serial communication protocol that allows multiple devices to communicate with each other using a shared bus.
- I2C uses a master-slave architecture, where one device acts as the master and initiates communication with one or more slave devices.
- The master device controls the bus and determines the timing of data transfers. The slave devices, on the other hand, respond to commands from the master and provide data or perform requested operations.

Node MCU(ESP8266)



- NodeMCU is an open-source firmware and development board that combines the functionality of an ESP8266 Wi-Fi module with a microcontroller.
- The ESP8266 is a popular low-cost Wi-Fi module that enables devices to connect to the internet and exchange data wirelessly.
- It typically includes the ESP8266 module, USB-to-serial converter for programming and power supply, voltage regulator, and a few GPIO pins for connecting external sensors, actuators, and other components. The board can be programmed using the Arduino IDE.

LCD



An LCD (Liquid Crystal Display) module is a common type of display technology used in various electronic devices. It consists of a flat panel display that utilizes liquid crystals to produce images or text. The LCD module typically includes a display controller, driver circuitry, and backlighting system. When connected to a microcontroller or other controlling device, it can receive data and instructions to display alphanumeric characters, symbols, graphics, or even full-motion videos, providing a visual output for user interfaces, information display, or data visualization in a compact and energy-efficient manner.

Relay



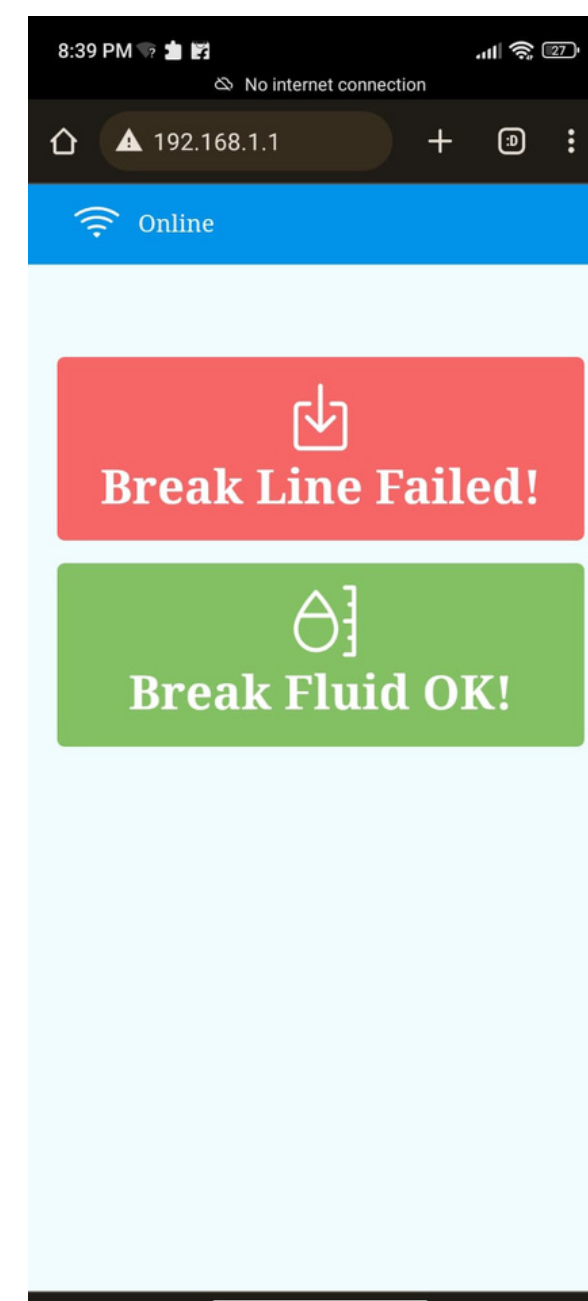
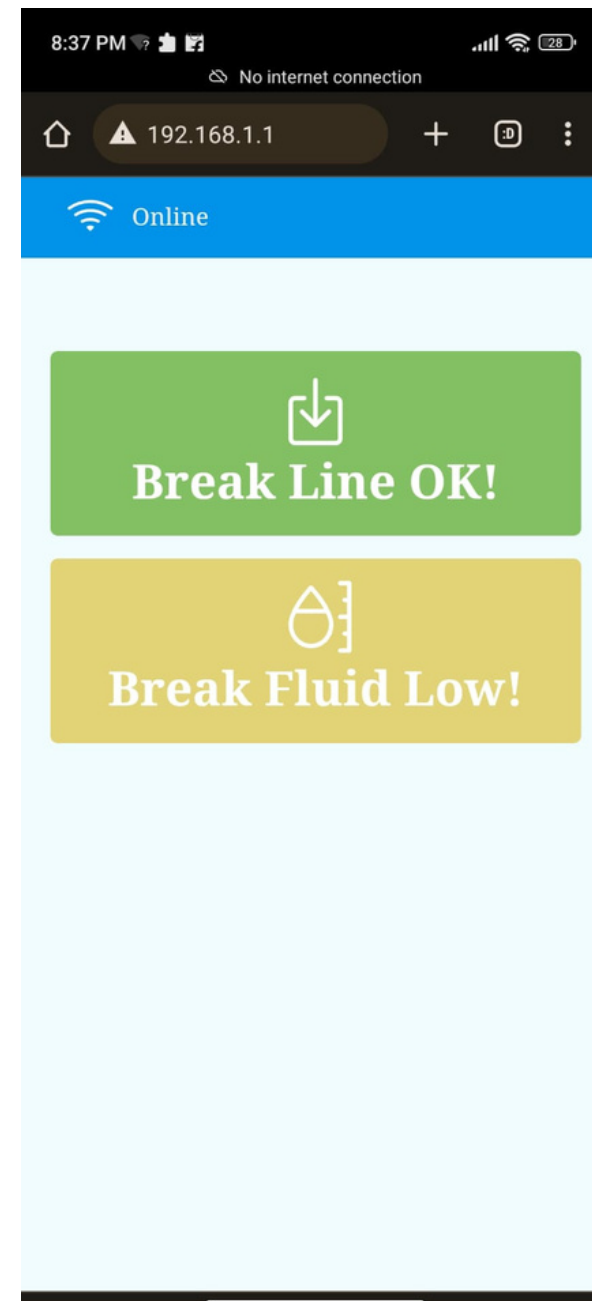
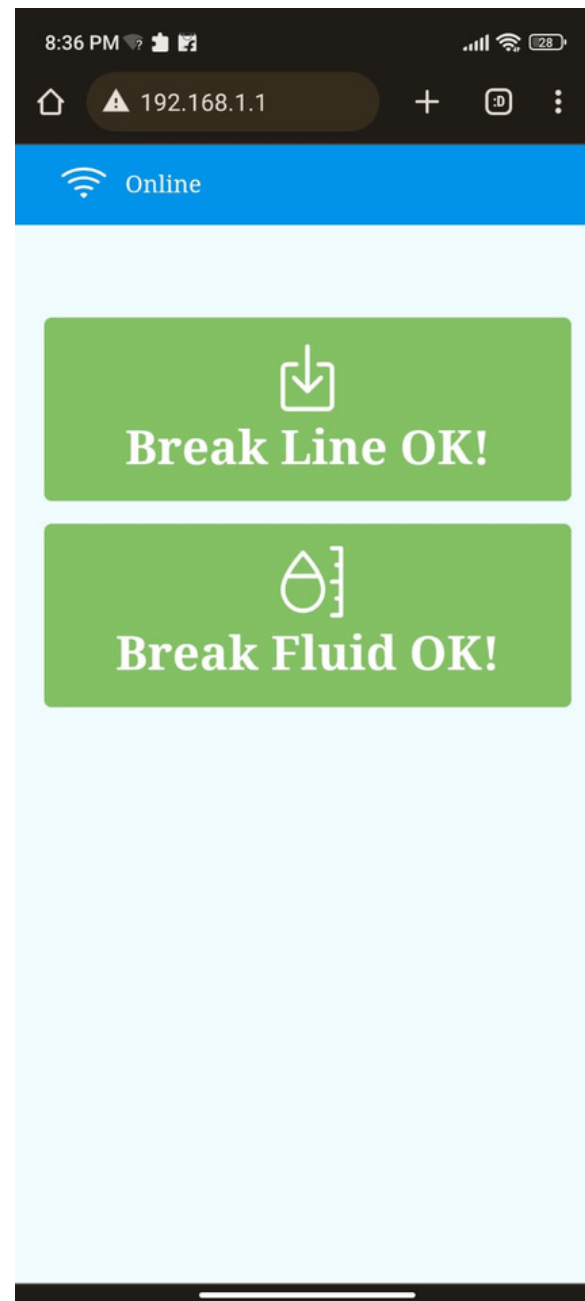
A relay module is an electronic device that provides an interface between a microcontroller or digital circuit and high-power loads such as motors, lights, or appliances. It consists of a relay (an electrically operated switch) and associated circuitry to control its operation. When a signal is applied to the module, the relay switches on or off, allowing or interrupting the flow of power to the connected load, making it a convenient and safe method for controlling high-power devices using low-power signals..

Expected outcome

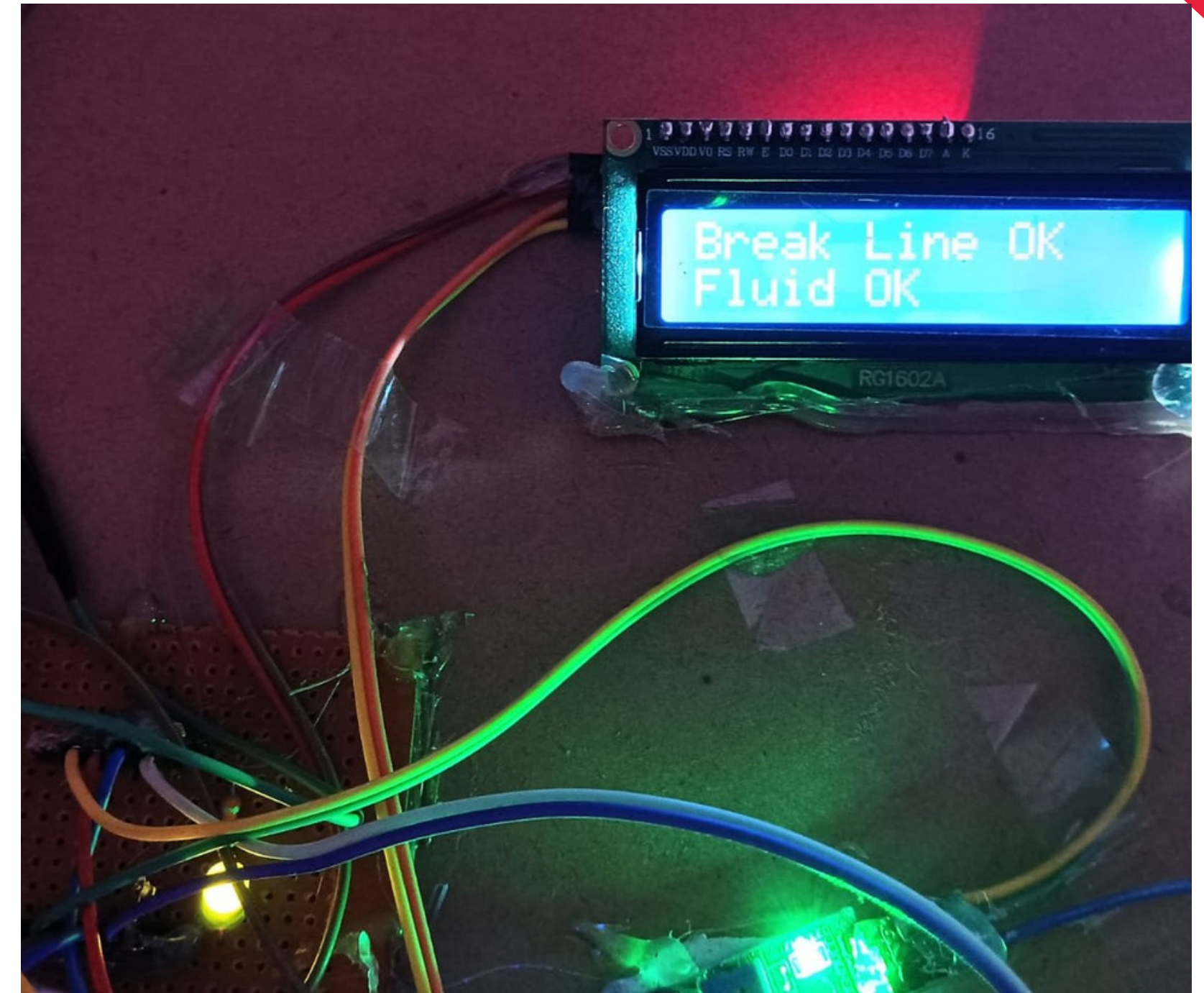
The expected result of the brake failure indicator system is to display real-time brake failure information on an LCD and a website. The LCD will show specific messages indicating the brake failure due to brake oil emptiness or brake wire/rod breakage

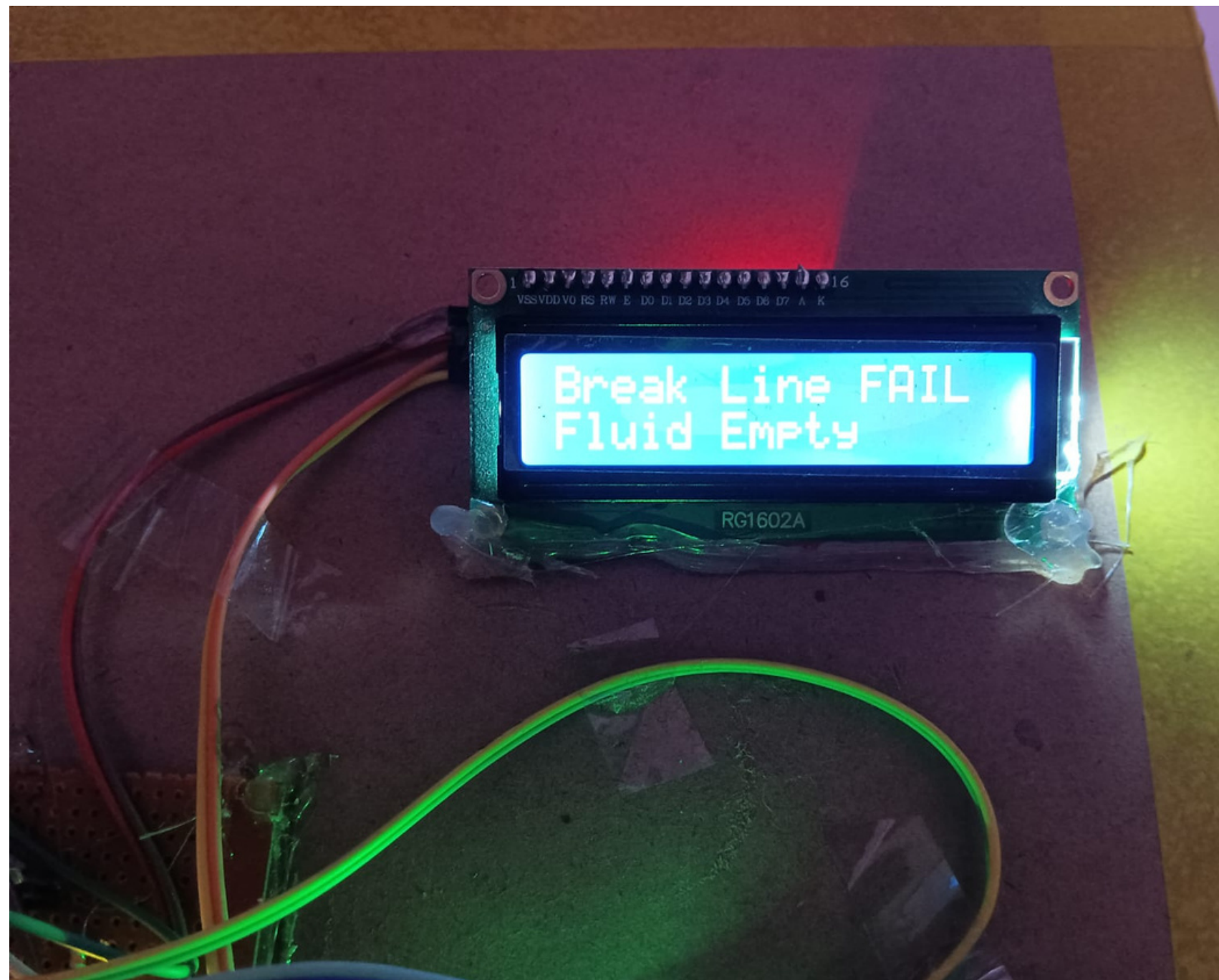
Result

Webpage display



LCD Display







Thank you