



భారతీయ సాంకేతిక విజ్ఞాన సంస్థ హైదరాబాద్
भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

EE2504 ESDP Project

ECO CLOCK

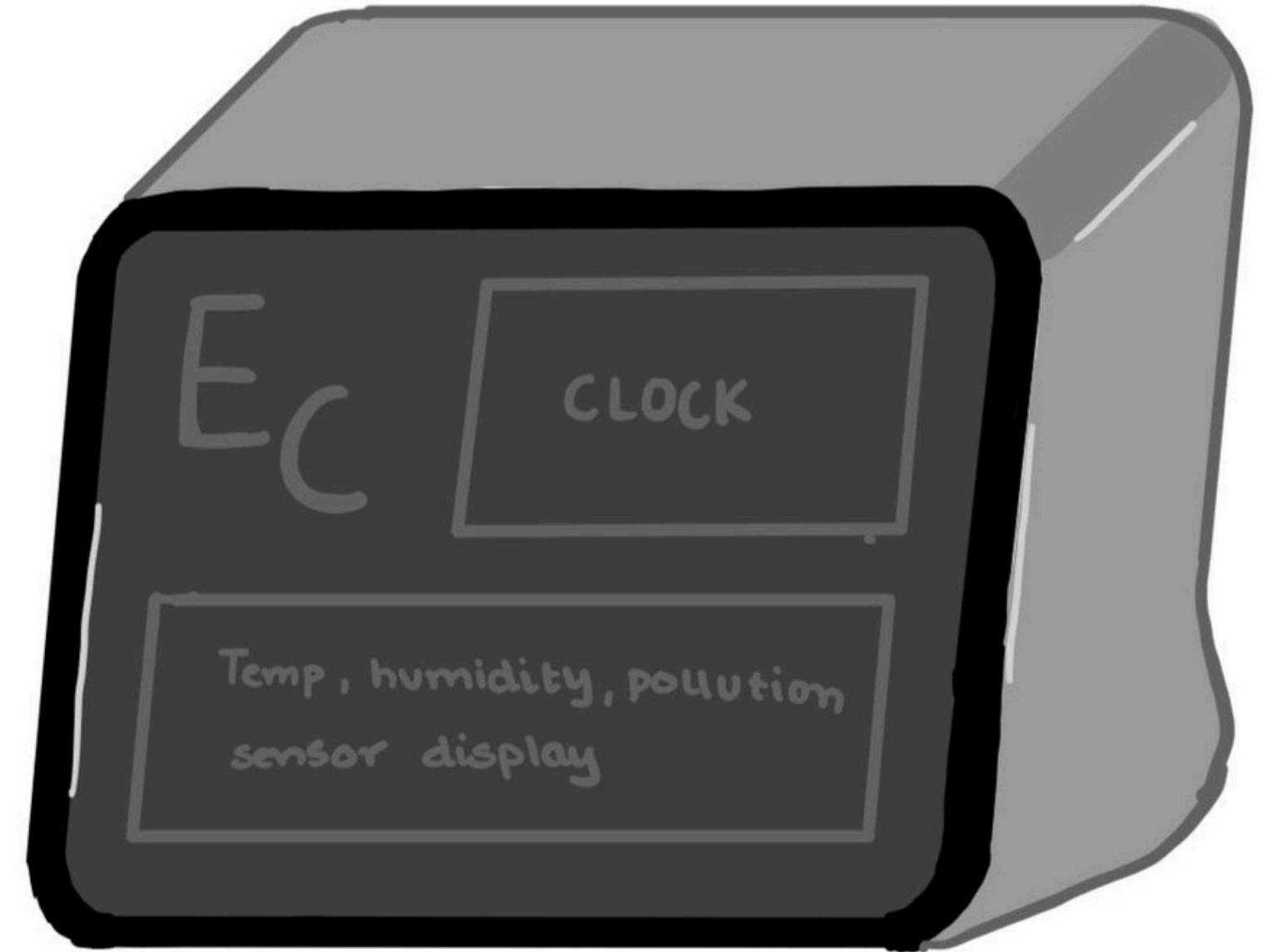
Time, Air, Temp, Humidity Navigator

EE22BTECH11204 - Anagha Balaji

EE22BTECH11206 - Chitampalli Ananya

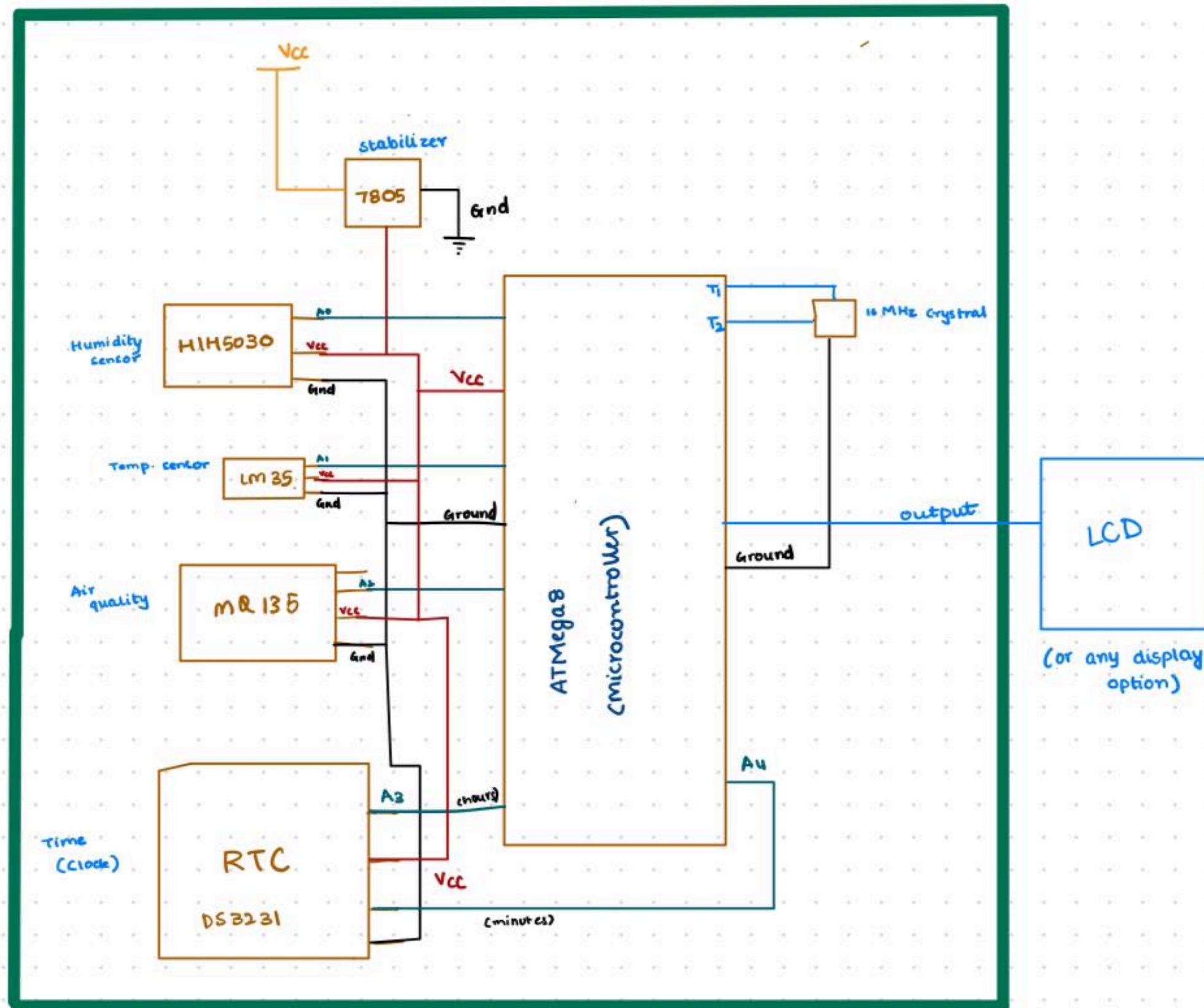
EE22BTECH11208 - Gargi Behera

EE22BTECH11215 - Rayi Giri Varshini



Overview

- The objective is to design a digital clock integrated with environmental sensors to display real-time temperature, humidity, and air quality values (updates every minute).
- It aims to provide users with essential environmental information in a compact and user-friendly format.
- The project involves using sensors to detect the weather conditions, a circuit for the clock and a display to represent everything.



Outline

01



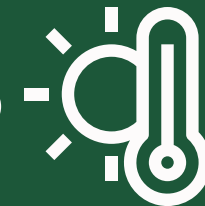
12 HOURS CLOCK

AIR QUALITY



02

03



TEMPERATURE

HUMIDITY



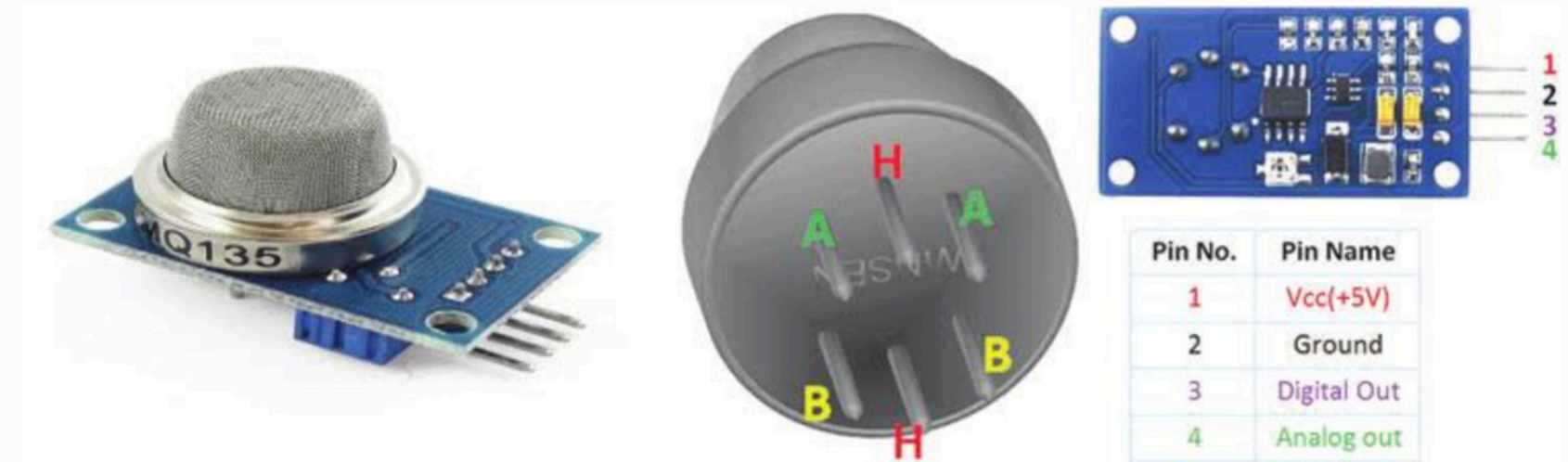
04

Clock

Air purity sensor

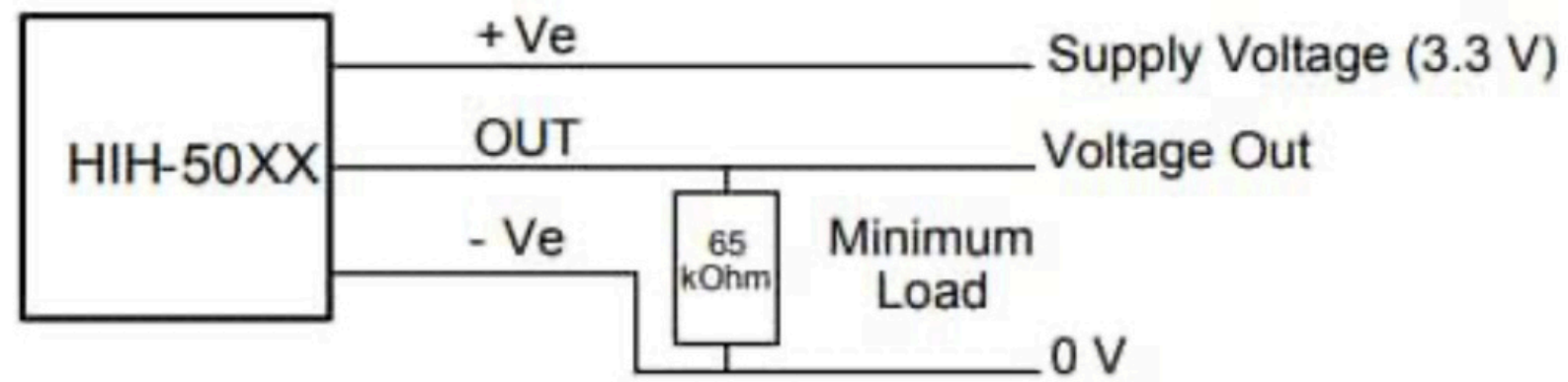


- In 12-hour format it is tracked through a real-time clock (RTC), which ensures accurate timekeeping, integrated with the microcontroller.
- It processes this information, converting it into digital values and displays on screen.



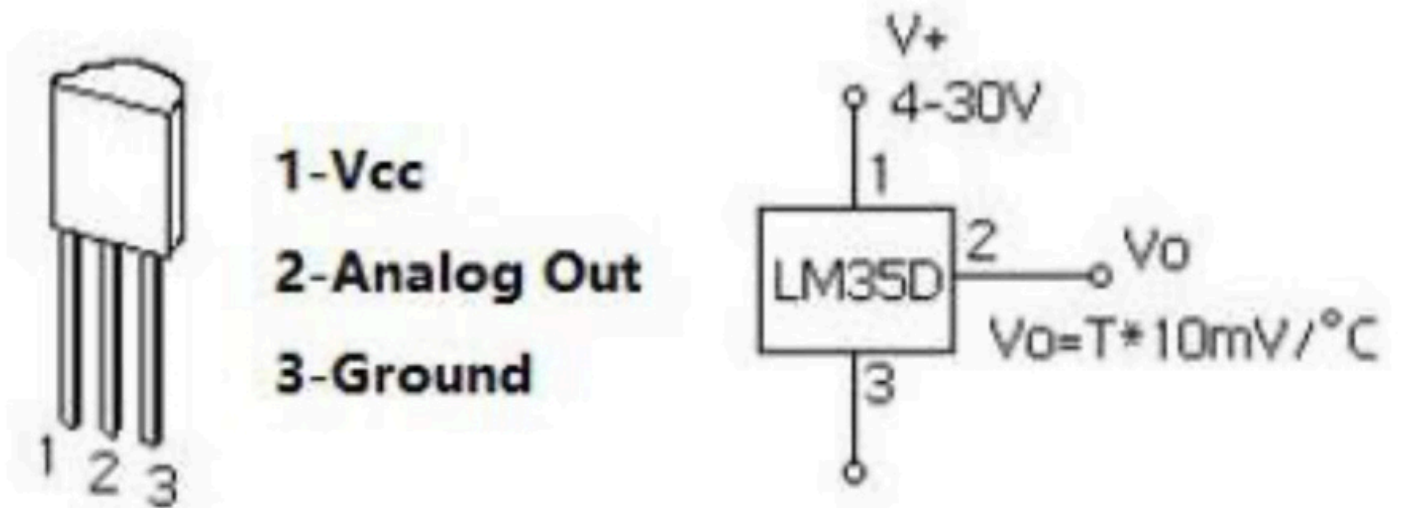
- Air quality sensors monitor gases, such as ozone, and particulate matter, which can harm human health and the environment.
- Sensor MQ135's detection range is from 10-1000ppm in the form of ammonia, toluene, hydrogen, smoke.

Humidity sensor



- A capacitive humidity sensor for accurately measuring relative humidity.
- It utilizes a moisture-sensitive polymer dielectric placed between two electrodes as its sensing element and gives analog voltage output.

Temperature sensor

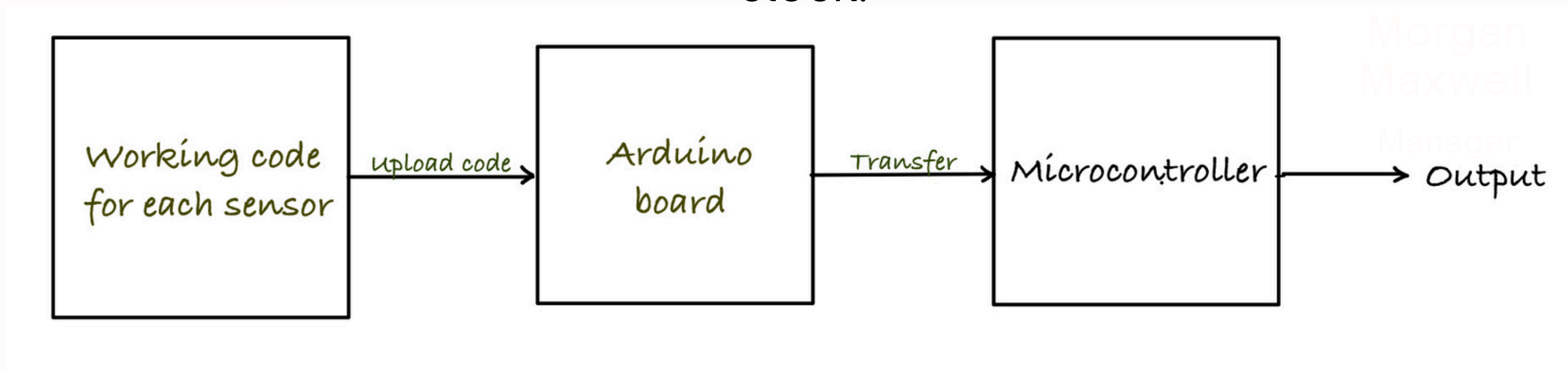


- The working principle of a temperature sensor is based on the variation in electrical resistance or voltage with changing temperature.
- The sensor measures temperature of range -55°C to 150°C and operates between 4V to 30V.

Microcontroller

The Microcontroller captures the analog signal from the sensors, undergoes analog-to-digital conversion, and then utilizes Arduino to process and display the converted values on the screen.

It is programmed to control the display and synchronize it with the sensor's output and the clock.





**THANK
YOU**