

Rotating LED Display

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Overview

>The Rotating LED Display is a group of LEDs that are connected as a straight line. The LEDs blink so fast that when they are rotated, they create an image that the human eye can see. This concept is called Persistence of Vision (POV). The LEDs display a digital clock and temperature while rotating using a motor. In addition, the temperature data is being sent via Bluetooth Module that is connected to the temperature sensor.

Specification

Inputs:

- ❖ Temperature Sensor : DHT11.
- ❖ Dimmer: Controls the resistance to the fan power and thus its speed.

Outputs:

- ❖ Clock
- ❖ Temperature

Bluetooth:

- ❖ 2 HC-05 Bluetooth modules are used:
- ❖ A master-configured HC-05 is connected to Arduino Uno to send sensor readings.
- ❖ A slave-configured HC-05 is connected to Arduino Micro to receive sent readings.

Software:

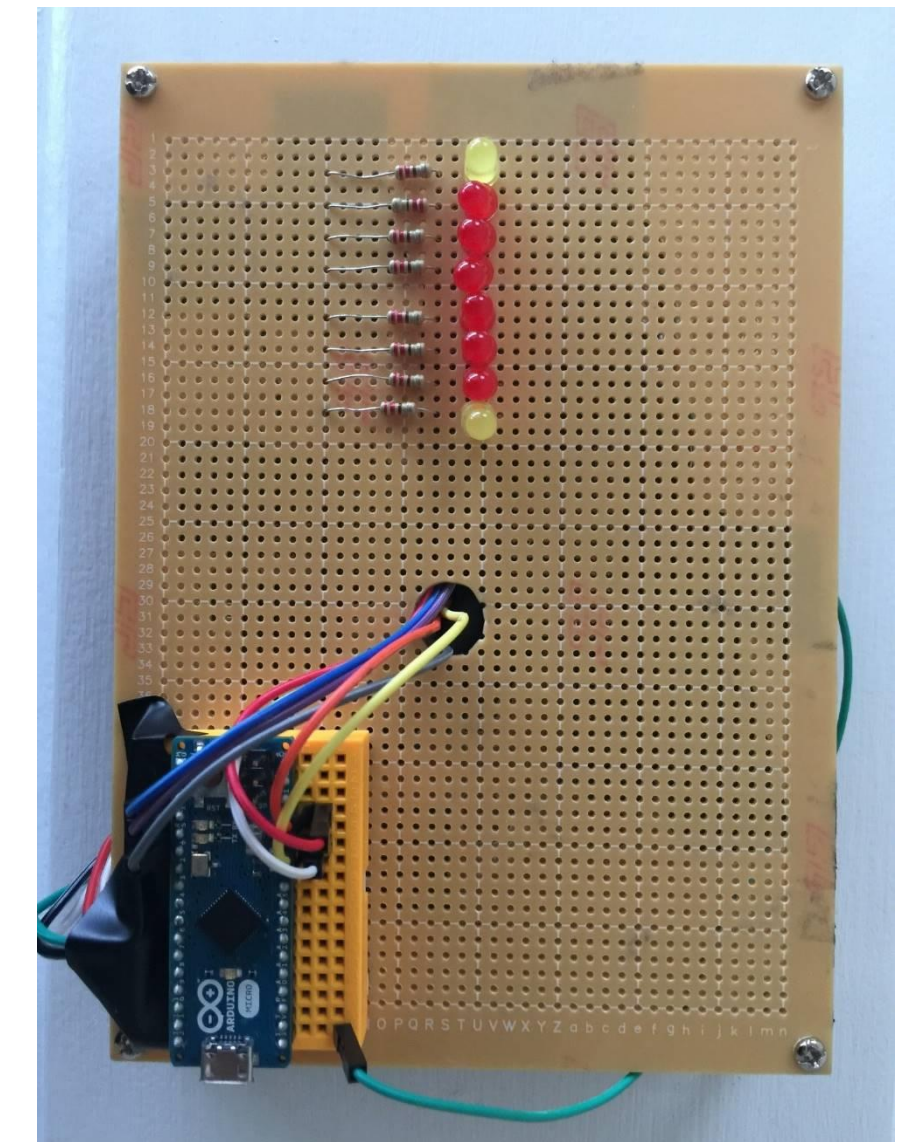
- ❖ Includes a Boolean array for every number.
- ❖ Includes time functions.
- ❖ Processes sensor readings on the sending the receiving Arduino boards.

Example of a Boolean array for the number two:

LED												
LED 1	0	0	1	1	1	1	1	1	1	1	0	0
LED 2	0	0	1	1	1	1	1	1	1	1	0	0
LED 3	0	0	0	0	0	0	0	0	0	1	1	0
LED 4	0	0	1	1	1	1	1	1	1	1	0	0
LED 5	0	0	1	1	1	1	1	1	1	1	0	0
LED 6	0	0	1	1	0	0	0	0	0	0	0	0
LED 7	0	0	1	1	1	1	1	1	1	1	0	0
LED 8	0	0	1	1	1	1	1	1	1	1	0	0

Hardware

- ❖ **LEDs:** x8 20mA LEDs.
- ❖ **Board model:** Arduino Micro & Arduino Uno.
- ❖ **Motor:** Fan motor.
- ❖ **Resistors:** x8 330Ω resistors.
- ❖ **Battery:** 9-12v Battery.
- ❖ **Power Supply** for Arduino Uno (Optional): 9V DC power supply.
- ❖ **Bluetooth:** HC-05 (2 Modules)
- ❖ **Breadboard:** Arduino Uno's sensor and Bluetooth
- ❖ **Mini Breadboard:** Arduino Micro
- ❖ **Sensors:** DHT11, Hall Effect Sensor



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