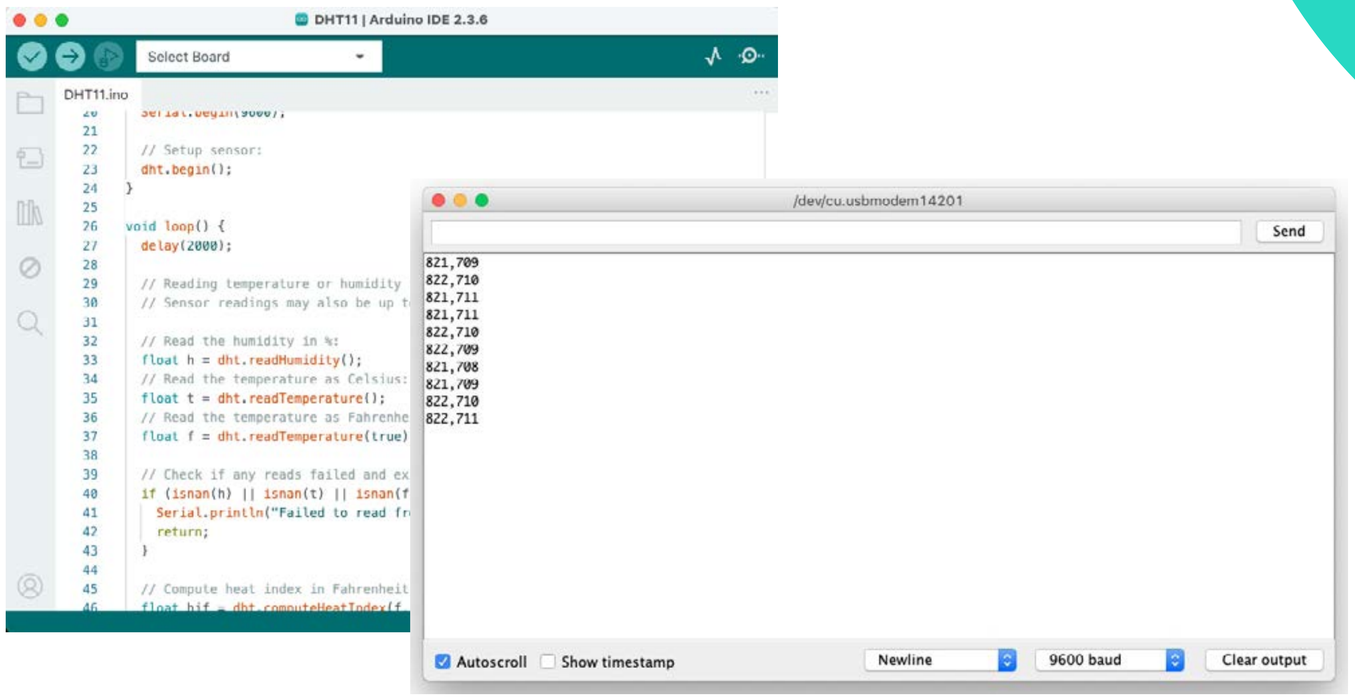
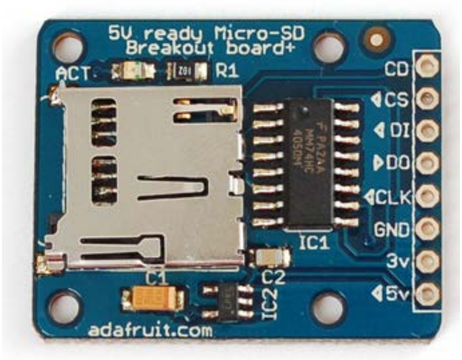
DATA LOGGING WITH ARDUINO

DHT11 sensor + SDCard module + RTC module
Recording CSV files in a micro SD Card.



DATA LOGGING WITH ARDUINO

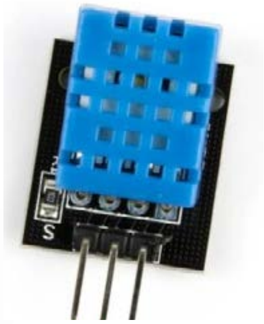
HARDWARE COMPONENTS



SD Card Module

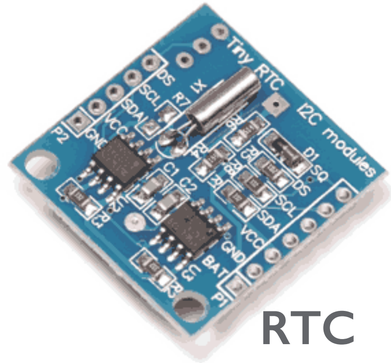
Arduino UNO board

Jumpers



DHT11 Sensor

BAT 3V

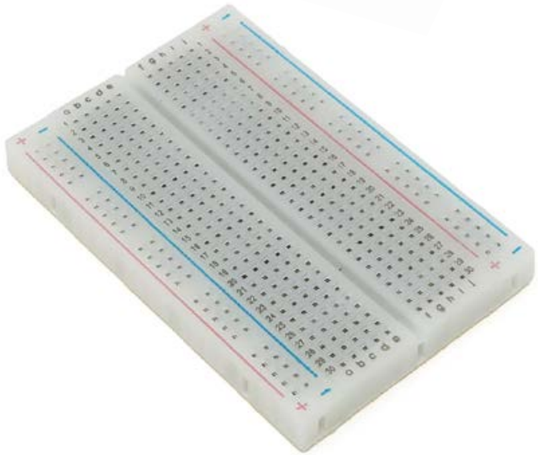


RTC Module

Micro SD Card

LED

220ohms resistor



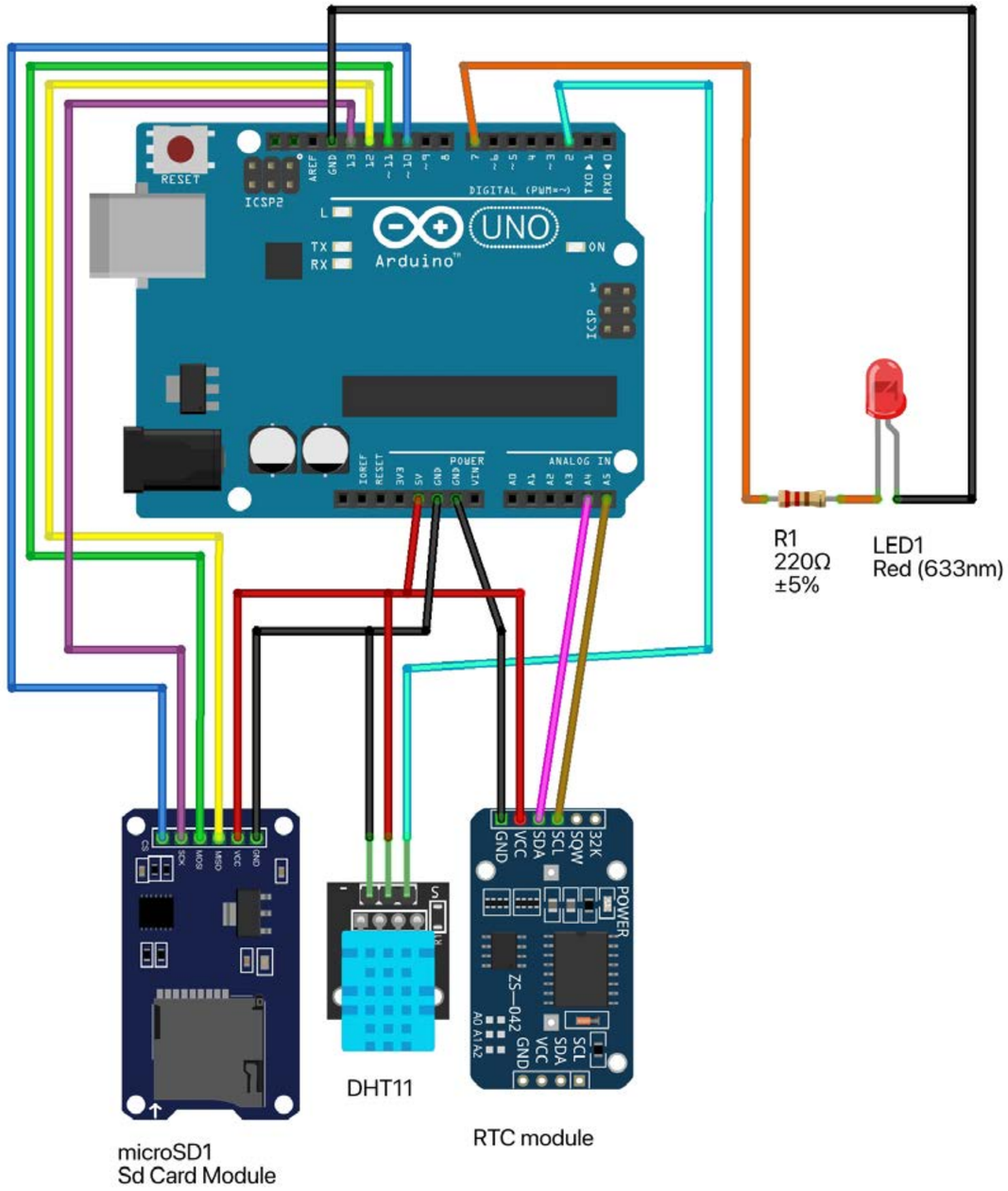
Breadboard

Power Bank 5V

DATA LOGGING WITH ARDUINO

WIRING

ARDUINO		COMPONENT
GND	—	GND (SD card module)
pin 13	—	CLK (SD card module)
pin 12	—	Do (SD card module)
pin 11	—	Di (SD card module)
pin 10	—	CS (SD card module)
5V	—	5V (SD card module)
pin 2	—	Signal pin (DHT sensor)
5V	—	5V or VCC (DHT sensor)
GND	—	GND (DHT sensor)
pin A4	—	SDA (RTC module)
pin A5	—	SCL (RTC module)
5V	—	VCC (RTC module)
GND	—	GND (RTC module)
pin 7	—	resistor 220 ohms — LED(-)
GND	—	LED (+)



CODING

1. Download the following libraries if you haven't done it already:

- RTClib
- DHT
- Adafruit_Sensor
- Adafruit_BusIO

2. Install libraries

Importing .ZIP libraries to Arduino. Instructions here

3. Coding

Download Data-Logging-Arduino-Code here

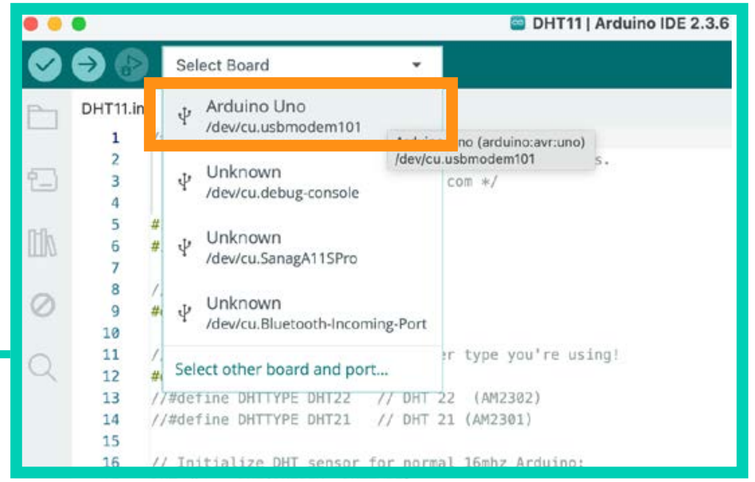
TRY AND TEST

- Insert the SD card into the SD card module (if you haven't done it already)

- Plug The Arduino Board to your computer

- Open the Arduino file (.ino) that you previously downloaded

- Select the Arduino UNO Board



- Upload the code to the board

NEXT STEPS

CONGRATULATIONS! You have built an environmental sensor device that records data every 5 seconds and saves it in .CSV format.

WHAT TO DO NEXT?

You can now modify the code to customise it according to your own ideas, goals, or project requirements. For example:

- Adjust the data logging interval (e.g. every 1 minute instead of every 5 seconds)
- Change the sensor output units (e.g. from Celsius to Fahrenheit)
- Modify RTC usage (e.g. log only the date, not the time)
- Alter LED behaviour
- Integrate additional sensors for more environmental data

NEED MORE HELP?

Book an induction with a hackSpace technician and/or approach the hackSpace workshop.