

Tutorial outline

Overview of the Arduino



Know the pins of Arduino

What Arduino can be use for.

Setting up



Installing required software and identification of components

Breadboard connection

How the bread is structured

How to use a project board (breadboard)

The Arduino IDE and code template

Installing the Arduino software

How Arduino code is structured and syntax

Digital Input/output operation

Setting a pin to be input or output

Sending digital signal to Arduino pins





Reading digital signals from Arduino pins
Conditional expression (if, else, switch)

Mini project

- *Blink an LED*
- *Read switch states*
- *Design a basic traffic light*
- *Design a door bell notify*

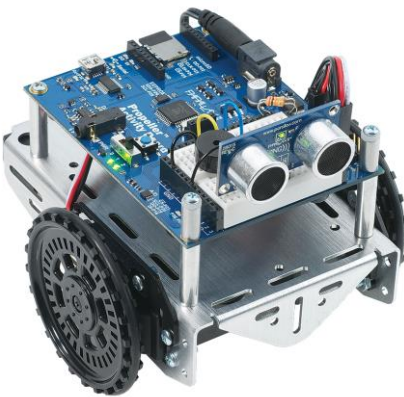


Serial Communication

Send message from Arduino to computer
Read command/message from Arduino

Mini project

- *Build temperature logging system*
- *Control bulb using your computer*



LCD display

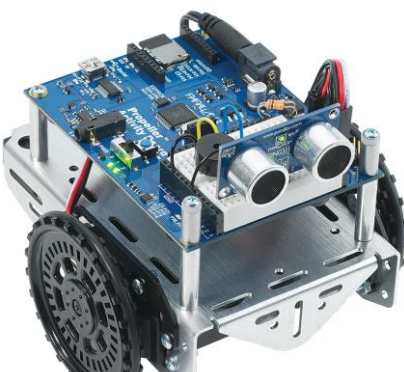
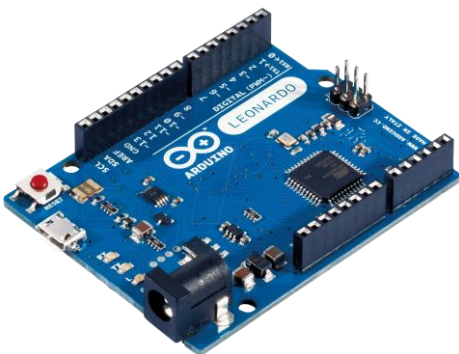
How to connect 16x2 LCD to Arduino
How to display messages on the LCD

Mini Project

- *Advertisement board*

Analog to digital converters

How to read analog values
How to do signal conditioning
Connecting analog sensors





Mini Project

- *Build automatic night light*
- *Build a volt meter*
- *Control fan speed based on how temperature*
- *Build a volt meter*



PWM

About Pulse Width Modulation and what you can use it to do

Know the Pulse Width Modulation pins

How to set duty cycle

Mini Project

- *Light brightness control*
- *motor speed control*

