



ARDUINO WORKSHOP

THEORY:

❖ Introduction:

1. What is Embedded System?
2. Block diagram overview.
3. Concepts & application.

❖ Arduino:

1. Introduction.
2. Introduction to Microcontrollers.
3. Architecture Overview.
4. Arduino Board Overview.
5. Arduino Platform / Software Installation.

PRACTICAL:

❖ Basic:

1. Kit installation.
2. Programming with Arduino.
3. Analog read Serial.
4. Digital read Serial.
5. Read analog Voltage.
6. Button.
7. PWM.

8. Tone generator.
9. Analog in serial out.
10. Calibration.

PROJECT:

✚ Led wave

Let's put some LEDs and resistors to work. In this project, we'll use five LEDs to emulate the front of the famous TV show vehicle KITT from the television show *Knight Rider*, creating a kind of wavelike light pattern.

- Algorithm
- Program
- Hardware

✚ Two way Traffic light control.

Our goal is to install three-color traffic lights at each end of the single-lane bridge. The lights allow traffic to flow only in one direction at a time. When sensors located at either end of the bridge detect a car waiting at a red light, the lights will change and allow the traffic to flow in the opposite direction.

- Algorithm
- Program
- Hardware

✚ Creating a Single-Cell Battery Tester

Single-cell batteries such as AAs usually begin at about 1.6 V when new and then decrease with use. We will measure the voltage and express the battery condition visually with LEDs.

- Algorithm
- Program
- Hardware

✚ Creating a Quick-Read Thermometer

In this project, we'll use the TMP36 to create a quick-read thermometer. When the temperature falls below 20 degrees Celsius, a blue LED turns on. When the temperature is between 20 and 26 degrees, a green LED turns on, and when the temperature is above 26 degrees, a red LED turns on.

- Algorithm
- Program
- Hardware

Materials Provided:

1. Certificates will be provided.
2. Software's will be provided.
3. Workshop materials will be provided CD's.