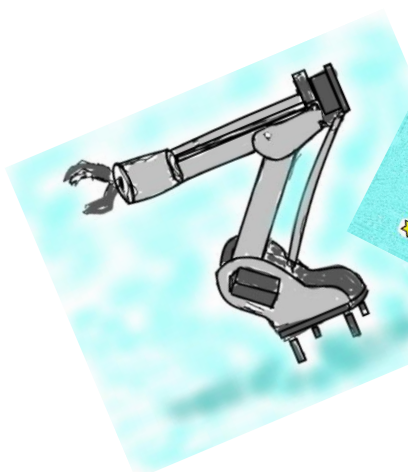


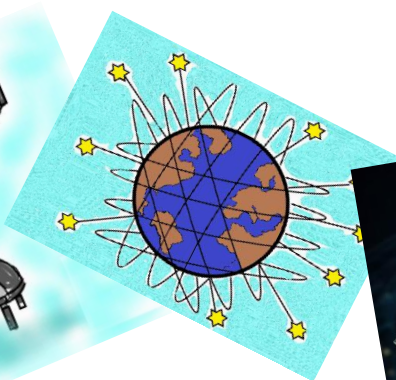


**BE MAKER**

ELETTRONICA, ROBOTICA E CODING PER RAGAZZI... E NON SOLO !



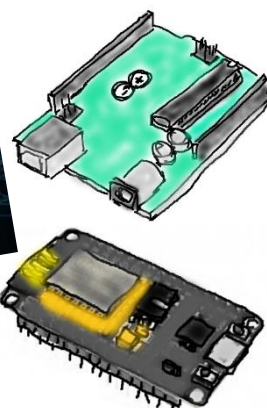
**Robotics**



**Internet of Things**



**Tiny ML Artificial Intelligence**



**Arduino and other microcontrollers**

**How to do it !**

**Archive of "How to do it!"**

**Vers. DECEMBER 2024**

**BY ROBERTO FRANCAVILLA**

Hello everyone!

This section of the [Be Maker.org](http://BeMaker.org) off-line website collects in one place suggestions, insights and solutions to the most common problems in the use of microcontrollers such as **Arduino**, **ESP32**, **Arduino Nano 33 BLE Sense**, and many others. It also includes how to use the various sensors, components, and applications useful for **Robotics**, **Internet of Things** (IoT), **Artificial Intelligence** (AI), **Tiny Machine Learning** (TinyML), and **Artificial Intelligence of Things** (AIoT) projects.

The goal is to have a single point of reference where it is possible to quickly access all the information useful to support our school or amateur projects.

Each topic is linked directly to the web page or to the related video tutorial where available. You can use the search function to easily find what interests you. The Kindle column indicates that the topic is also available in the e-book in "Kindle" format on Amazon which is free for those who have an Unlimited subscription, while the "Book" column means that the topic is available in the e-book in PDF format that you can purchase by making a donation to the link to which you will be directed.

Argument	Site	Video	Kindle	Book
<a href="#">How to set up our electronics, robotics and coding laboratory</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How an LED works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to turn on an LED with Arduino directly</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How it works and how to use a button in electronic circuits</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use a button to turn on an LED with Arduino directly</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to drive the ignition of an LED with Arduino by code</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make two LEDs flash alternately with Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to read the value of a resistor using the colored bands on the component</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make an LED traffic light with Arduino – how to drive three LEDs with code</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make sketches for Arduino</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to check the status of a button with Arduino and activate events</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to measure the value of a resistor with Arduino – Ohmetro</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the photoresistor works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to connect a photoresistor to Arduino to make it work as a switch</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to measure the illuminance of a room with Arduino – Luxmeter</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the PWM signal – Pulse Width Modulation works with Arduino</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use PWM signal with Arduino (Fade effect) to drive one or more LEDs</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to drive two or more PWM signal synchronized LEDs with Arduino - Cylon</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How an RGB LED works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to drive an RGB LED with Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How a Potentiometer - Trimmer works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to connect a Potentiometer to Arduino to drive an LED directly</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>

<a href="#">How to drive an RGB LED with button and potentiometer with Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How a Ball Tilt Sensor Works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use a Ball Tilt Sensor with Arduino to make an Hourglass</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the Active Buzzer and the Passive Buzzer work</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to connect an Active Buzzer to Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to connect a Passive Buzzer to Arduino and create melodies</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the Microphone Works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to connect the Microphone to Arduino to create an Alarm System</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the HC-SR04 Ultrasonic Module - Obstacle Distance Sensing Works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Connect HC-SR04 to Arduino for Obstacle Distance Detection</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to give movements to a Robot – Degrees of Freedom and Electric Drives</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the SG90 Servo Motor Works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to connect and control an SG90 Servo Motor with Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Build an Ultrasonic Radar System with Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Build an Ultrasonic Radar System with Arduino and Processing</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How a Voltage Divider Works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the LM35 Temperature Sensor works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to connect an LM35 Sensor to Arduino to detect the Temperature of a body</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make a Light Thermometer with Arduino – How to use the "switch-case"</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the DHT11 Temperature and Humidity Sensor Works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to measure the Temperature and Humidity in an environment with Arduino and DHT11</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How Hall Effect Sensors Work to Detect the Magnetic Field</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Connect the KY003 Sensor to Detect a Magnetic Field with Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to connect the KY035 Sensor for analog magnetic field detection</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How a Metal Detector Works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make a Metal Detector with the KY024 Linear Magnetic Hall Sensor and Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the Led segment display works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make a Countdown with 7-segment display and Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make a Second Counter with 4-digit display with 7 segment LEDs and Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make a stopwatch with 4-digit display and 7 LED segments and Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to display the value of a Potentiometer on a Led Display with Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>

<a href="#">How to use the millis() function in sketches with Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How a Led Matrix Display Works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use a LED Matrix Display with Arduino</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How an LCD Display Works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use the LCD Display with Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the KY032 Infrared Sensor Works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Connect the KY032 Obstacle Detection Sensor with Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to connect the KY032 EN-enabled Obstacle Detection Sensor with Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the KY033 Infrared Sensor Module - Line Tracking Works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to connect and use the KY033 with Arduino to give the Robot Line Tracking</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the KY022 Infrared Control – IR Remote Controller works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Decode the Signal of an Infrared Remote Control with Arduino and KY022</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Pilot Events with Infrared Remote Control and the KY022 connected to Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to approach the World of Robotics. The Robot Arm</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the MG996R Servo Motor Works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to test a servo motor. The Servo-tester</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make a servo tester with Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to assemble a Robot Arm sold in Kit</a>	<a href="#">Yes</a>	<a href="#">1, 2, 3</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to define the work space of a Robot Arm</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Pilot a Robot Arm with 6DOF Potentiometer Controller</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the HC-05 Bluetooth Wireless Module works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to configure the HC-05 Module with Arduino in AT mode</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Configure HC-05 Module with Arduino in Switch Mode</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to transfer data between Smartphone and Arduino with HC-05 Module via Bluetooth</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to transfer data between PC (with Processing) and Arduino with HC-05 Module via Bluetooth</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Control a Robot Arm via BT with PC via GUI and Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the PCA9685 Controller for Servo Motor Control Works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use the PCA9685 Controller with Arduino to control Servo Motors</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Pilot a Robot Arm with PCA9685 Controller and Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to remotely pilot a Robot Arm via BT with HC-05 and with PCA9685 and Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to interface the PS2 controller with Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to remotely pilot a Robot Arm with PS2 Controller, PCA0685 Controller and Arduino</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to prepare our Artificial Intelligence Lab - AI</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Install and Configure Arduino Nano 33 BLE Sense for our AI projects in the Arduino IDE</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>

<a href="#">How to upload the sketch and how to run it on Arduino Nano BLE Sense</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the APDS 9960 sensor works - Digital Proximity, RGB Light and Gesture Sensor on Arduino Nano 33 BLE Sense</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use the APDS 9960 sensor on Arduino Nano 33 BLE Sense for Color Recognition</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use the APDS 9960 Arduino Nano 33 BLE Sense sensor for Gesture Recognition</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Use the APDS 9960 Arduino Nano 33 BLE Sense Sensor for Proximity Assessment</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the Arduino Nano 33 BLE Sense LPS22HB Pressure Sensor Works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the HTS221 Humidity and Temperature Sensor of Arduino Nano 33 BLE Sense works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Measure Humidity and Temperature with the HTS221 of Arduino Nano 33 BLE Sense</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Measure Barometric Pressure and Temperature with LPS22HB of Arduino Nano 33 BLE Sense</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make a simple Weather Station with Arduino Nano 33 BLE Sense</a>	<a href="#">si</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the IMU Inertial Sensor Works - Arduino Nano 33 BLE Sense LSM9DS1</a>	<a href="#">si</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Measure 3D Acceleration along Cartesian axes with LSM9DS1 of Arduino Nano 33 BLE Sense</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Measure 3D Angular Velocity - Gyroscope - with LSM9DS1 of Arduino Nano 33 BLE Sense</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Measure the 3D Magnetic Field on the Cartesian Axes with LSM9DS1 of Arduino Nano 33 BLE Sense</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the Arduino Nano 33 BLE Sense Omnidirectional Digital Microphone MP34DT05 works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How an Electric Capacitor Works</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the RGB LED works on the Arduino Nano 33 BLE Sense</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use RGB LED on Arduino Nano 33 BLE Sense</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make a Sound Analyzer with Microphone MP34DT05 Arduino Nano 33 BLE Sense</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Drive an RGB LED with Sound Analysis with Arduino Nano 33 BLE Sense</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the Bluetooth BLE Module works on Arduino Nano 33 BLE Sense</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to drive the RGB LED of Arduino Nano 33 BLE sense from a Smartphone via Bluetooth BLE</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How Machine Learning and Tiny Machine Learning work</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to create an Artificial Intelligence with Deep Learning</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to install the TensorFlow Lite Libraries in the Arduino IDE</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make our first Tiny Machine Learning project</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How Google Colab works</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to create a Learning Dataset – example in Colab</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to create a split Dataset with Validation and Test Data</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>



<a href="#">How to create a complete Learning, Validation and Testing Dataset</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How Neural Networks Work</a>	<a href="#">Yes</a>		<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use TensorFlow's Keras API to build a Neural Network – Introduction. Basic Model</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Build a Neural Network Model with TensorFlow's Keras</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Pack and Reduce the Model to be Loaded on a Microcontroller as a Sketch – Basic Introductory Example</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make our first Tiny ML application with Arduino nano 33 BLE Sense</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to approach Industry 4.0</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the Internet of Things Course is structured</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the Target Project is defined</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the Pillars of the Internet of Things are defined</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to prepare your lab for IoT system design</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to approach the IoT Course</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How breadboard is made</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Connect Active and Passive Components in a Circuit</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How Sensors can be classified in the IoT world</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Monitor Temperature and Humidity with the DHT11</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Monitor Rain with the FC-37</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the FC-37 Rain Sensor Module works</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Monitor Temperature, Humidity and Rain at the Same Time</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Monitor Ambient Light with GY-30 Sensor Module</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Monitor Ambient Light with GY-302 Sensor Module</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Monitor Doors and Windows for Intrusion Detection</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use the Hall Effect Sensor</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use the REED Sensor</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to mount Intrusion Detection Sensors</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make the Intrusion Detection with the use of the Sensor Module – KY003</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make the Intrusion Detection with the use of the Sensor Module – KY025</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the Intrusion Detector Motion Detector works. Doppler effect</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to create the Intrusion Detection with the use of the RCWL 0516 sensor module</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How PIR (Passive InfraRed) Sensors Work</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Achieve Intrusion Detection with the Use of the HC-SR501 PIR Sensor Module</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Implement Intrusion Detection Using the HC-SR505 PIR Sensor Module</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to detect water leaks.</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to create a Water Leak Detection sensor. Anti-flooding sensor.</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to detect smoke and fire.</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to make a Fire Detection System with KY-001.</a>			<a href="#">Yes</a>	<a href="#">Yes</a>

<a href="#">How to detect fire using the MQ-2 smoke sensor module.</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to check the healthiness of the air in your home</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to build a Carbon Monoxide Detection System with the MQ-7.</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to create a system for the detection of the presence of Carbon Dioxide with the ENS160 + AHT21.</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to create a TVOC detection system with the AGS02MA sensor module</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to approach Orthotics, or robotic technology applied to vegetable gardens and gardens</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How buoyancy works and Archimedes' Principle</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use the float with Arduino</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to check the Arduino's "in-out" power supply so as not to damage it</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Manage a Water Storage Tank with State Logic</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the Relay works with Arduino</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How the submersible pump works</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to connect and use an SPDT Relay to drive an Arduino Submersible Pump</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to carry out a complete project of the management of a water storage tank with Arduino</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to keep plant soil moisture under control</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use and connect the FC-28 Resistive Soil Moisture Sensing Sensor Module with Arduino</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Use the Capacitive Sensor Module for Soil Moisture Sensing</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Connect Capacitive Sensor Module for Soil Moisture Sensing with Arduino</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How Relay Modules with 2 or more channels work</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Make a Smart USB Power Socket with the Use of a Light Sensor</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to create communication systems in the Internet of Things</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Use RS485 Serial Communication System</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Configure the MAX485 Integrated Circuit (MAX485 IC)</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use the TTL-RS485 module with Arduino</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Apply Practical Tips for RS485 and TTL-RS485 ICs with Arduino</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to realize RS485 serial communication between two Arduinos with MAX485 IC</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Configure a MODBUS RS485 Communication System</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to realize MODBUS RS485 communication between two Arduinos with MAX485 IC</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to realize MODBUS RS485 communication between three Arduinos with MAX485 IC</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to explore other communication systems: I2C, SPI, and Bluetooth</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use the I2C communication system between three Arduinos</a>			<a href="#">Yes</a>	<a href="#">Yes</a>

<a href="#">How to Use SPI Communication with Arduino: One Master and Two Slaves</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Communicate Wirelessly Bluetooth with Arduino</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to set up HC-05 Bluetooth module for Arduino</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use a bidirectional logic level converter</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to set up HC-06 Bluetooth module for Arduino</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to create a Bluetooth Master-Slave communication between two Arduino Uno</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to configure the HC-05 and HC-06 Bluetooth modules in AT mode</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Analyze Sketches for Bluetooth Master-Slave Communication</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to communicate with radio frequency with the nRF24L01 module</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Realize RF Communication Between Two Arduinos with nRF24L01</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Create Two-Way RF Communication with AckPayload Between Arduino</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Exchange Data in Arduino Wireless Network with Multiple nRF24L01+ Modules</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to troubleshoot and optimize the use of the nRF24L01+ module</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Use Long Range Communication with LoRa</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Connect and Test LoRa Modules with Arduino and ESP32</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Create a LoRa Wireless Smart Sensor in Mesh Network</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to connect and use an LCD display with Arduino</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to use a 0.96" OLED display with Arduino</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to set up a 2.8" TFT display with Arduino</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to create a data mask on a TFT display with Arduino</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Represent Sensor Data on a Web Page</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to create a web page without writing code</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to create a web server with DNS on ESP32</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Update Data in a Web Page with XML</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Use WebSockets to Update Real-Time Data on a Web Page</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to configure a WebSocket Server with ESP32</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to create an IoT Web Server in the cloud on the Blynk platform</a>			<a href="#">Yes</a>	<a href="#">Yes</a>
<a href="#">How to Understand the Artificial Intelligence of Things (AIoT)</a>				<a href="#">Yes</a>
<a href="#">How to apply the concept of Tiny Machine Learning (TinyML)</a>				<a href="#">Yes</a>
<a href="#">How expert systems have evolved towards Machine Learning</a>				<a href="#">Yes</a>
<a href="#">How TinyML integrates with IoT to create AIoT</a>				<a href="#">Yes</a>
<a href="#">How Deep Learning Works</a>				<a href="#">Yes</a>
<a href="#">What you need to get started with machine learning</a>				<a href="#">Yes</a>
<a href="#">How to approach Machine Learning. The basics.</a>				<a href="#">Yes</a>
<a href="#">How a Machine Learning course is organized</a>				<a href="#">Yes</a>
<a href="#">How to apply basic mathematics to Machine Learning</a>				<a href="#">Yes</a>
<a href="#">How to deal with a new mode of software programming: Machine Learning</a>				<a href="#">Yes</a>



<a href="#">How the learning process works in Machine Learning</a>				<a href="#">Yes</a>
<a href="#">How to draw a line with Python</a>				<a href="#">Yes</a>
<a href="#">How to Determine w and b Parameters with Error Reduction</a>				<a href="#">Yes</a>
<a href="#">How to Fix a Parabolic Problem</a>				<a href="#">Yes</a>
<a href="#">How to Build a Foundation for Machine Learning</a>				<a href="#">Yes</a>
<a href="#">How a neural network works</a>				<a href="#">Yes</a>
<a href="#">How to build our first neural network with a single neuron</a>				<a href="#">Yes</a>
<a href="#">How to Design a Multilayer Neural Network</a>				<a href="#">Yes</a>
<a href="#">How to define the key parameters of a neural network</a>				<a href="#">Yes</a>
<a href="#">How to define datasets for training, validation and testing</a>				<a href="#">Yes</a>
<a href="#">How to avoid underfitting and overfitting in models</a>				<a href="#">Yes</a>
<a href="#">How to make a classification with Machine Learning</a>				<a href="#">Yes</a>
<a href="#">How to Design a Model for Image Classification</a>				<a href="#">Yes</a>
<a href="#">How to reduce overfitting with Dropout, L2 regularization and Early Stopping</a>				<a href="#">Yes</a>
<a href="#">How to Consider Ethics in Machine Learning System Design</a>				<a href="#">Yes</a>
<a href="#">How to approach Convolutional Networks (CNN)</a>				<a href="#">Yes</a>
<a href="#">How image convolution and compression work</a>				<a href="#">Yes</a>
<a href="#">How to Apply Convolution to an Image</a>				<a href="#">Yes</a>
<a href="#">How to create a black and white image dataset</a>				<a href="#">Yes</a>
<a href="#">How to Design a CNN for Image Classification</a>				<a href="#">Yes</a>
<a href="#">How to optimize a CNN to reduce overfitting</a>				<a href="#">Yes</a>
<a href="#">How to use the Dropout</a>				<a href="#">Yes</a>
<a href="#">How to use Data Augmentation</a>				<a href="#">Yes</a>
<a href="#">How to use L2 Regularization</a>				<a href="#">Yes</a>
<a href="#">How to use Early Stopping</a>				<a href="#">Yes</a>
<a href="#">How to Use the Parameter Reduction Method</a>				<a href="#">Yes</a>
<a href="#">How to optimize a CNN to improve computer vision</a>				<a href="#">Yes</a>
<a href="#">How to use the CIFAR-10 dataset</a>				<a href="#">Yes</a>
<a href="#">How to Realize in Ultimate CNN Model for Classification or Computer Vision</a>				<a href="#">Yes</a>

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