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Arduino code examples

Have you ever wanted to learn how to write code for the Arduino board by working on fun projects, but never knew where or how to start? I believe many makers have been in this situation, so I created a collection of Arduino projects with increasing difficulty levels. These projects will help you learn the basics of programming the Arduino board efficiently and progress to more complex projects. The collection includes various projects such as LED blink, button, brightness, traffic light controller, servomotor control, smart night lamp, play tunes, and voice control. These projects can inspire your own projects. For a more in-depth learning experience, you can take our complete Udemy online course: Arduino and Robotics. The source code for these projects can be found on Github. Let's start with the "LED Blink" project, which is similar to the "Hello world" program in computer programming. You'll write a code to display the sentence "Hello world" on the console of a computer. Once comfortable with this project, you can add more control to your LED by using a push button and implementing a process called denouncing. Next, we'll explore controlling the brightness of an LED by adjusting the voltage on its pins using the PWM output of the Arduino board. This will involve connecting an LED to pin 3 and a potentiometer connected to analog input A0. We'll also build a traffic light controller with three LEDs (Red, Yellow, Green) that will light up one after another after a specified amount of time. Additionally, you can connect a button to the Arduino to emulate a "Pedestrian crossing" button that turns the traffic light to Red on demand. Using a Servomotor and Microphone for Smart Night Lamp and Voice Control ========== We can use a servomotor to control the angle of an LED, similar to the LED brightness control project. However, using libraries like "Servo.h" makes it easy to control a servomotor. We'll use the "attach()" and "write()" functions to configure the PWM output port and set the position of the servomotor. The Smart Night Lamp project will combine all our knowledge so far. It will change the brightness of 3 LEDs using a potentiometer and set the angle of the servomotor to indicate the brightness level. A multi-color LED can be used instead, allowing for different colors. However, we'll stick to what we've learned so far. We can also create sound using the Arduino board by connecting a buzzer to a PWM output and using the "tone()" function. The frequency and duration of each tone are stored in arrays and played by reading each value. To build an advanced artificial intelligence like Jarvis, we'll connect a microphone to the Arduino board. We can capture our voice as a signal that changes over time. By detecting the amplitude of the vocal signal, we can turn on an LED when speaking into the microphone. The project involves using the Arduino 101 board and creating cool projects with functionalities only possible with this advanced board. Looking at this board featuring accelerometers, timers, Bluetooth, and more, here are some helpful resources for you: Udemy course: "Arduino and Design: Make Your First Robot" Github: Projects Code We hope you enjoyed this post; it will be updated as new projects are added to the Github repository. Stay tuned and keep working on your coding projects. Learn Arduino with Our Comprehensive Resources Discover the features and underlying principles of the Arduino ecosystem, a popular programming tool for beginners and experienced makers alike.