**Basic Arduino with Tinker Cad Simulation 🛠️**

Welcome to Basic Arduino with Tinker cad Simulation — a beginner-friendly collection of Arduino projects designed to be simulated in [Tinker CAD Circuits](https://www.tinkercad.com/dashboard). This repo is perfect for anyone starting out with Arduino programming and electronics, especially if you don't have access to physical components.

**🔍 Overview**

Each project in this repository comes with:

* ✅ A simple Arduino sketch
* ✅ A working Tinker cad simulation link
* ✅ Circuit diagram and component list

**💡 Projects Included**

|  |  |
| --- | --- |
| Project Title | Tinker CAD Simulation Link |
|  |  |
| Interfacing Ultrasonic Sensor with Arduino | [Link](https://www.tinkercad.com/things/1wjN7NJYeZH-interfacing-ultrasonic-sensor-with-arduino/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard) |
| Fire Alarm System Project with Arduino | [Link](https://www.tinkercad.com/things/fhJNRCWZgtr-fire-alarm-system-project-with-arduino/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard) |
| Light Intensity Measurement using LDR sensor and Arduino | [Link](https://www.tinkercad.com/things/fndjD1lJMsY-light-intensity-measurement/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Password Protected Security System project using Arduino | [Link](https://www.tinkercad.com/things/dUxwdJjErLA-password-protected-security-system-project-using-arduino/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Interfacing Temperature Sensor with Arduino | [Link](https://www.tinkercad.com/things/hHgrBVHtjU4-interfacing-temperature-sensor-with-arduino/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Controlling LEDs using IR Remote and Arduino UNO | [Link](https://www.tinkercad.com/things/fRLa9xyEOQo-controlling-leds-using-ir-remote-and-arduino-uno-/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Arduino Uno Calculator Project | [Link](https://www.tinkercad.com/things/dAuY8S4LMYV-arduino-uno-calculator-project/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D1) |
| Interfacing Keypad with Arduino UNO | [Link](https://www.tinkercad.com/things/2001UhzVb6S-interfacing-keypad-with-arduino-uno/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Applications of a Potentiometer | [Link](https://www.tinkercad.com/things/5v2ibG6tahO-applications-of-a-potentiometer/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| How to make a Capacitance Meter using Arduino | [Link](https://www.tinkercad.com/things/cvLKUcLV2BC-how-to-make-a-capacitance-meter-using-arduino/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| How to make a Piano using Arduino | [Link](https://www.tinkercad.com/things/hBtQwqFPhnm-how-to-make-a-piano-using-arduino/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Digital Voltmeter Arduino Uno | [Link](https://www.tinkercad.com/things/8gLVF0SvIJd-digital-voltmeter-arduino-uno/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Interfacing neopixel strip with Arduino | [Link](https://www.tinkercad.com/things/e3nsOtKVlXu-interfacing-neopixel-strip-with-arduino/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Automatic Hand Sanitizer – DIY\* | [Link](https://www.tinkercad.com/things/feL02FgkW0n-automatic-hand-sanitizer-diy/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Smart Hand Sanitizer using Tinker CAD | [Link](https://www.tinkercad.com/things/2rBWgg5YNEE-smart-hand-sanitizer-using-tinkercad/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Servo motor with IR remote and Arduino\*\* | [Link](https://www.tinkercad.com/things/cQP3pHZC6Tm-servo-motor-with-ir-remote-and-arduino/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Digital Thermometer using LCD and Arduino\*\*\* | [Link](https://www.tinkercad.com/things/jTbeiiwa1Xo-digital-thermometer-using-lcd-and-arduino/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D1) |
| Motion Controlled Colour Changer | [Link](https://www.tinkercad.com/things/1gWyYHkaH6D-motion-controlled-colour-changer/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| DIY thermometer using Atttiny85 on TinkerCAD | [Link](https://www.tinkercad.com/things/gxRU16g05Pm-diy-thermometer-using-atttiny85-on-tinkercad/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Traffic Light Demo Project using TinkerCAD and Arduino | [Link](https://www.tinkercad.com/things/9IYr6dNGOHA-traffic-light-demo-project-using-tinkercad-and-arduino/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Dimmer circuit | [Link](https://www.tinkercad.com/things/cujW6x72Xmf-dimmer-circuit/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Interfacing Photodiode with Arduino | [Link](https://www.tinkercad.com/things/2MoPLyZGi7S-interfacing-photodiode-with-arduino/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Interfacing TMP36 with ATtiny85 | [Link](https://www.tinkercad.com/things/kC6NlplQr9E-interfacing-tmp36-with-attiny85-/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Arduino based Mini Piano | [Link](https://www.tinkercad.com/things/9pbHzyl32Wy-arduino-based-mini-piano-/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Interfacing LCD Display with ATTINY85 | [Link](https://www.tinkercad.com/things/k9jIB38ssd9-interfacing-162-lcd-display-with-attiny85/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Creating Digital Voltmeter using Attiny85 and 7 segment Display | [Link](https://www.tinkercad.com/things/gcmzhDg1YZ6-creating-digital-voltmeter-using-attiny85-and-7-segment-display/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D1) |
| Creating an LED Dice using Attiny85\*\*\* | [Link](https://www.tinkercad.com/things/aHYwSjZ7zcb-creating-an-led-dice-using-attiny85/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Breathing LED Control Brightness of LED Arduino Projects | [Link](https://www.tinkercad.com/things/go3gPvHKjwJ-breathing-led-control-brightness-of-led-arduino-projects/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| LED Flowing Lights using Tinkercad | [Link](https://www.tinkercad.com/things/8yM7V07OqFR-led-flowing-lights-using-tinkercad/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| PIR Sensor with Arduino | [Link](https://www.tinkercad.com/things/3ekqe0kZ8RE-pir-sensor-with-arduino/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Controlling the brightness of LED using Attiny85 | [Link](https://www.tinkercad.com/things/kGKa9zOm2S7-controlling-the-brightness-of-led-using-attiny85/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Interfacing Servo Motor with Arduino Explanation using Tinker cad | [Link](https://www.tinkercad.com/things/7KGy85WxVw8-interfacing-servo-motor-with-arduino-explanation-using-tinkercad/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Controlling RGB LED By PWM using Tinker cad | [Link](https://www.tinkercad.com/things/3JOOdvQ1DbU-controlling-rgb-led-by-pwm-using-tinkercad-/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Interfacing PIR Sensor with Arduino using Tinker cad | [Link](https://www.tinkercad.com/things/gbPofVdyPHQ-interfacing-pir-sensor-with-arduino-using-tinkercad/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Interfacing Neo Pixel Jewel with Arduino | [Link](https://www.tinkercad.com/things/awooC8YxGY4-interfacing-neopixel-jewel-with-arduino-/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D1) |
| Creating Digital Voltmeter using Arduino | [Link](https://www.tinkercad.com/things/8OW8caOga0z-creating-digital-voltmeter-using-arduino-/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Smart Parking System using Arduino | [Link](https://www.tinkercad.com/things/bihTalxujY3-smart-parking-system-using-arduino/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| How to blink an LED using Arduino UNO | [Link](https://www.tinkercad.com/things/4RFHjTV4eS7-how-to-blink-an-led-using-arduino-uno/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Controlling Multiple LEDs with Arduino Uno Project | [Link](https://www.tinkercad.com/things/8AFFX3AQOfN-controlling-multiple-leds-with-arduino-uno-project-/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |
| Solar Tracker System using Arduino and LDR Sensor | [Link](https://www.tinkercad.com/things/dfkkkDvgmnu-solar-tracker-system-using-arduino-and-ldr-sensor/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits%3Fpage%3D2) |

**🎓 Who Is This For?**

🧑‍🎓 Students and beginners learning electronics

👩‍🏫 Teachers demonstrating Arduino in class

🛠️ Hobbyists prototyping ideas

🧪 Anyone without access to physical components

**🔧 Requirements**

You don’t need any physical hardware to run these projects. You only need:

A free Tinker cad account (sign up at tinkercad.com)

Basic knowledge of how to:

Upload Arduino code

Build circuits in the Tinker cad simulator

**🚀 How to Use**

Clone this repository:

git clone https://github.com/imtiaz-03040/Basic-Arduino-with-Tinker-CAD-Simulation.git

**🙌 Contributing**

Pull requests are welcome! If you have a cool beginner project you'd like to add, feel free to fork and submit.

**⭐ Show Your Support**

If you find this helpful, give the repo a ⭐ and share it with others who are learning Arduino!

**📬 Contact**

Do you have questions or suggestions? If you have an issue, reach out via LinkedIn.

#Arduino #Tinkercad #Electronics #Simulation #STEM #BeginnerProjects #Makers

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