

INTRODUCTION

DFRduino Uno V3.0 from DFRobot is a physical world computing board of small size for academics or development . It is a simple microcontroller board fully compatible with [Arduino UNO R3](#) and Arduino IDE open-source development environment. This environment implements the Processing / Wiring language. Arduino can be used to develop stand-alone interactive objects or can be connected to software on your computer (e.g. Flash, Processing, MaxMSP). The open-source IDE can be [downloaded for free](#) (currently for Mac OS X, Windows, and Linux).

This board features the ATmega16U2 programmed as a USB-to-serial converter. An added bonus is that our DFRduino is still using the DIP package AVR Chip. You could remove it to update or reprogram the chip's firmware, or even to place it on a finished, more compact project. The cool thing about our new DFRduino microcontroller is that the headers use different colors to feature I/O ports of different types:

- **Red** for Power Section.
- **Blue** for Analog I/O.
- **Green** for Digital I/O.

These colors match our sensor cables. This makes it really easy to figure out where to connect sensors, or to identify which side is Analog (blue) or Digital (green).

"[Arduino Uno](#)" is a microcontroller board based on the [ATmega328](#). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

This board added SDA and SCL pins that are near to the AREF pin and two other new pins placed near to the RESET pin, the IOREF that allow the shields to adapt to the voltage provided from the board. In future, shields will be compatible both with the board that use the AVR, which operate with 5V and with the "Arduino Due" that operate with 3.3V. The second one is a not connected pin, that is reserved for future purposes.

DFRobot Arduino Compatible Microcontrollers Series

					
Name	DFRduino UNO	DFRobot Leonardo	DFRobot Mega 2560	Romeo V2	Romeo
SKU	DFR0216	DFR0221	DFR0191	DFR0225	DFR0004
Microcontroller	ATmega328p	ATmega32u4	ATmega2560	ATmega32U4	Atmega328
Working voltage	5V	5V	5V	5V	5V
CPU Frequency	16MHz	16MHz	16MHz	16MHz	16MHz
TIO ports / PWM	6 / 14	7 / 20	54 / 15	20 / 7	14 / 6
Analog inputs	6	12	16	12	8
UART	1	2	4	2	1
I2C	1	1	2	3	3
SPI	1	1	1	1	1
Interrupt pins	2	2	2	2	2
EEPROM[KB]	1	1	4	1	1
Flash[KB]	32	32	256	32	32
SRAM[KB]	2	2.5	8	2.5	2
USB	A-B USB cable	micro USB cable	A-B USB cable	micro USB cable	A-B USB cable
Dimension	75*55*15mm	75*55*15mm	100*53*15mm	89*84*14mm	90*80*14mm
Vin	7-12V	7-12V	7-12V	7-12V	7-12V
Price	\$19.9	\$19.9	\$24.9	\$34.95	\$29.5
Weight (g)	45	50	70	80	80
IDE version	Arduino 1.0 and above	Arduino 1.0 and above	Arduino 1.0 and above	Arduino 1.0 and above	Arduino 1.0 and above
Feature	DFRduino UNO is fully compatible with Arduino UNO R3, suitable for Arduino beginners and hobbyists	DFRobot Leonardo is a low-cost controller, integrated with Xbee and SPI. Suitable for low cost and communication demand of hobbyists	DFRduino Mega has 54 digital pins and 16 analog pins, 4 UART channels. Suitable for demands of vast sensors	Use ATmega32u4, 2 serial ports. Integrated with Xbee socket and motor drivers	Microcontroller with motor driver, communication ports, IO expansion ports, it can be used as the main controller of robots

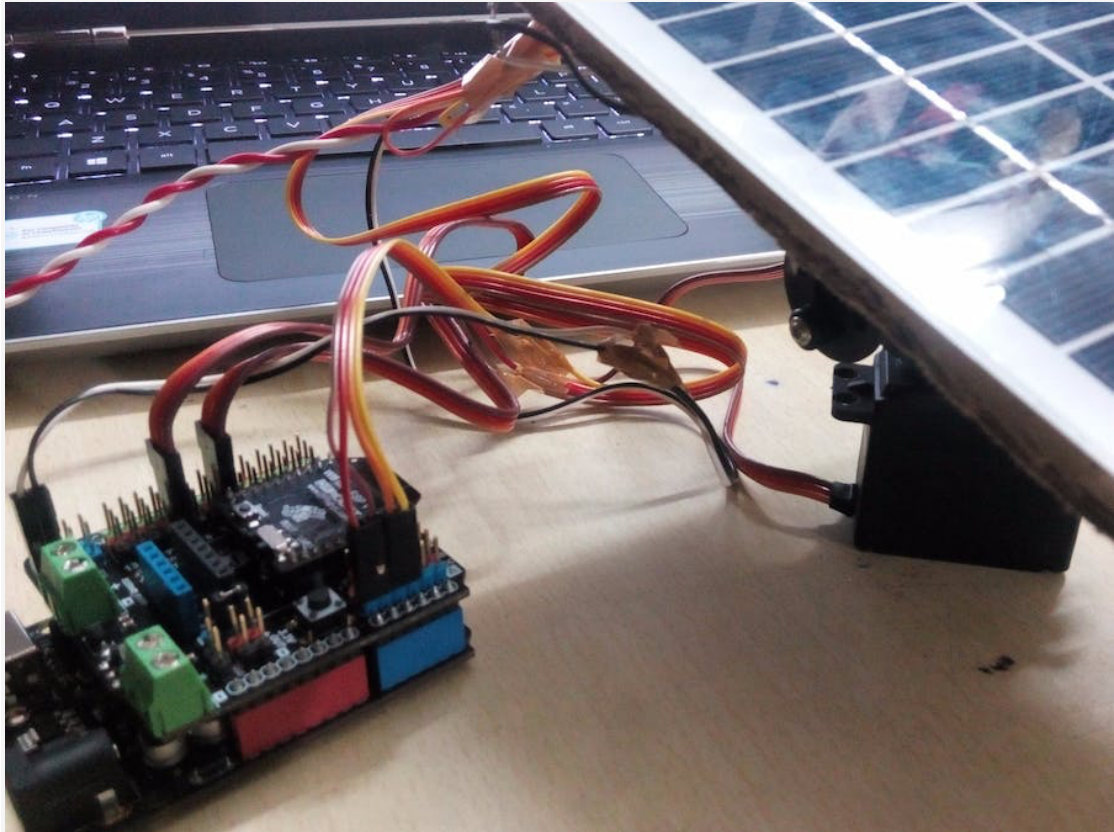
SPECIFICATION

- Microcontroller: ATmega328 (DIP Package)
- Operating Voltage: 5V
- Input Voltage (recommended): 7 ~ 12V
- Input Voltage (limits): 6 ~ 20V
- Digital I/O Pins: 14 (of which 6 provide PWM output)
- Analog Input Pins: 6
- DC Current per I/O Pin: 40 mA
- DC Current for 3.3V Pin: 50 mA
- Flash Memory: 32 KB of which 2KB used by bootloader
- SRAM: 2 KB (ATmega328)
- EEPROM: 1 KB (ATmega328)
- Clock Speed: 16 MHz
- Size: 75 x54 x15 mm (2.95 x2.13 x0.59")
- Environment Friendly: Rohs Compliance

PROJECTS

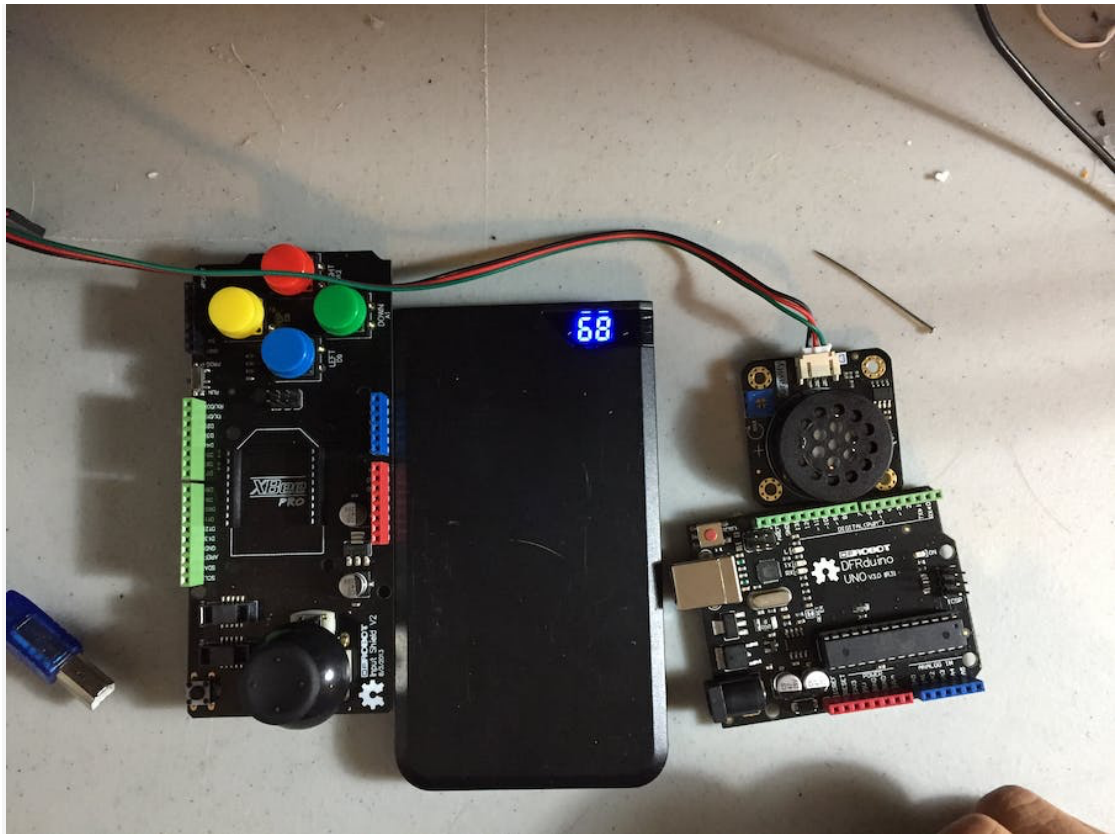
1. Project: [Sunflower - Arduino Solar Tracker](#)

Introduction: 'The Sunflower' is an Arduino based solar tracker which will increase the efficiency of the solar panel while charging.



2. Project: [Zelda Song Player](#)

Introduction: Assemble an Arduino Uno-based device to recreate an N64 controller to play the first six songs from the Legend of Zelda: Ocarina of Time!

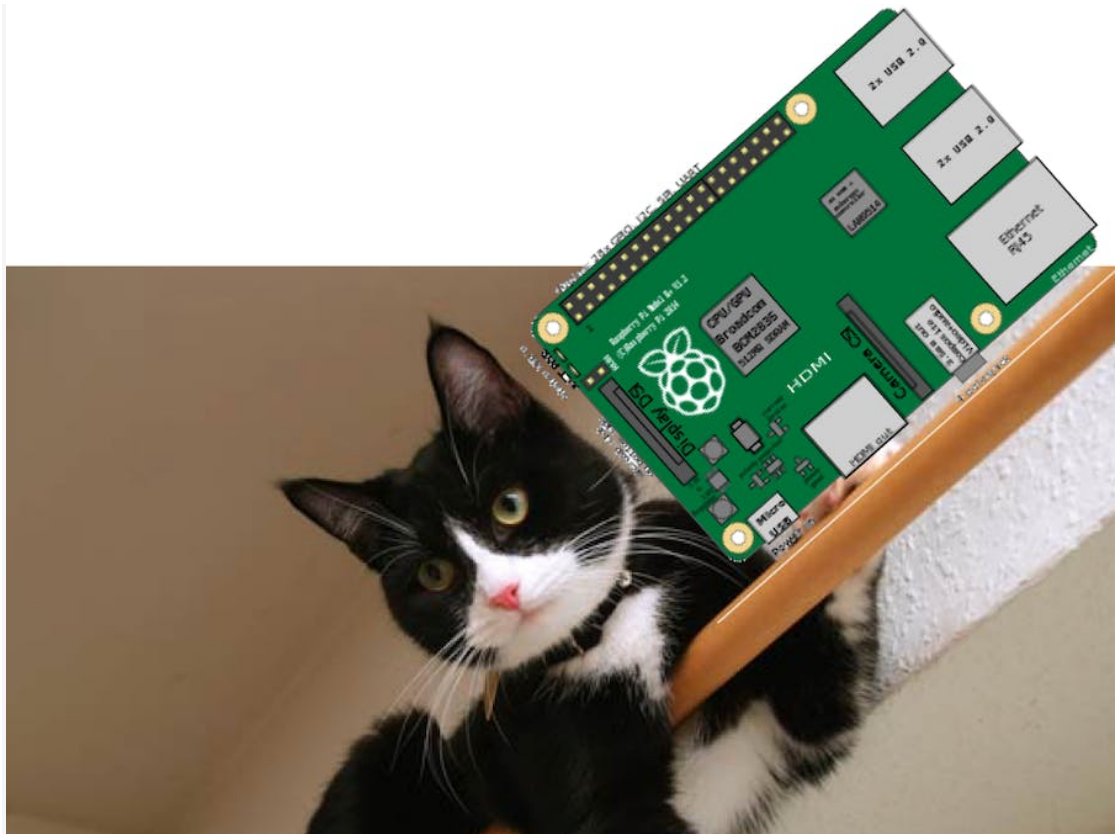


3. Project: [E-Paper display with Arduino from DFRobot](#)

Introduction: In this video, we learn how to use an E-Paper display with an Arduino board.

4. Project: [CAT-BOT](#)

Introduction: I used to dream of my kitty talking to me and now I am going to make my toy kitty react to my actions and even CHAT WITH ME!



5. Project: [How To Make LED Kitchen Sink Lights with a PIR Sensor, Arduino, and 3D Printing](#)

Introduction: I wanted to brighten up my kitchen and install some lights under the sink, but rather than buy a pre-made LED kit, I decided to make my own. Let me show you how I made this!

DOCUMENTS

- [ATmega328P datasheet](#)
- [DFRobot Arduino Compatible Microcontrollers Selection Guide](#)

SHIPPING LIST

- DFRduino Uno V3.0 x1