



CT-UNO

CT UNO (Arduino Uno Compatible)



User's Manual

V1.0

Nov 2014

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1. INTRODUCTION

[CT-UNO](#) is a Cytron version of Arduino Uno. This board combines the simplicity of the UNO's Optiboot bootloader (which load program faster), the stability of the FTDI and the R3 shield compatibility of the latest [Arduino UNO R3](#).

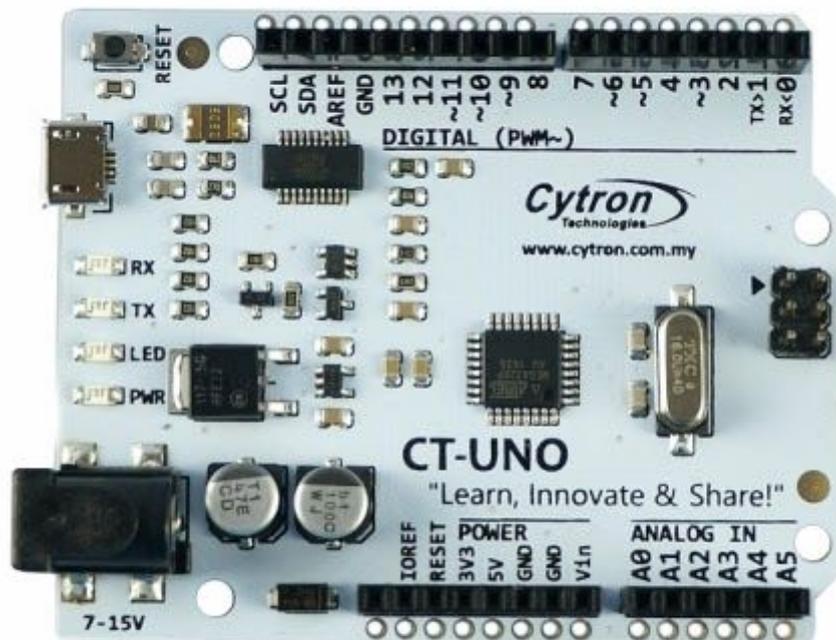
CT-UNO has all the amazing features Arduino UNO offer. 14 Digital I/O pins with 6 PWM pins, 6 Analog inputs, UART, SPI, external interrupts, not to forget the I2C too. The SDA, SCL and IOREF pins which being broken out on UNO R3 are on CT-UNO too. We has also populated the ISP header pins (SPI and power). With this, CT-UNO will be compatible with all Arduino UNO's shield.

CT-UNO comes with following features:

- SMD ATmega328 microcontroller with Optiboot (UNO) Bootloader.
- USB Programming Facilitated by the Ubiquitous FTDI FT231X (more stable).
- Input voltage: DC7-15V.
- On board 1A (maximum) 5V voltage regulator.
- On board 500mA (maximum) 3.3V voltage regulator.
- 0-5V digital outputs with 3.3V compatible inputs.
- 14 Digital I/O Pins (6 PWM outputs).
- 6 Analog Inputs (Can be digital I/O too).
- ISP 6-pin Header.
- 32k Flash Memory.
- 16MHz Clock Speed.
- R3 Shield Compatible.
- TX, RX, Power, pin 13 LEDs are moved to edge.
- Utilize USB Micro-B socket.
- White PCB!

2. PACKING LIST

Please check the parts and components according to the packing list. If there are any parts missing, please contact us at sales@cytron.com.my immediately.



CT-UNO comes with:

- 1 x [CT-UNO](#) board.

Optional add-on:

- [12V 2A AC to DC Adapter](#)
- [USB Micro B cable](#)

3. PRODUCT SPECIFICATION

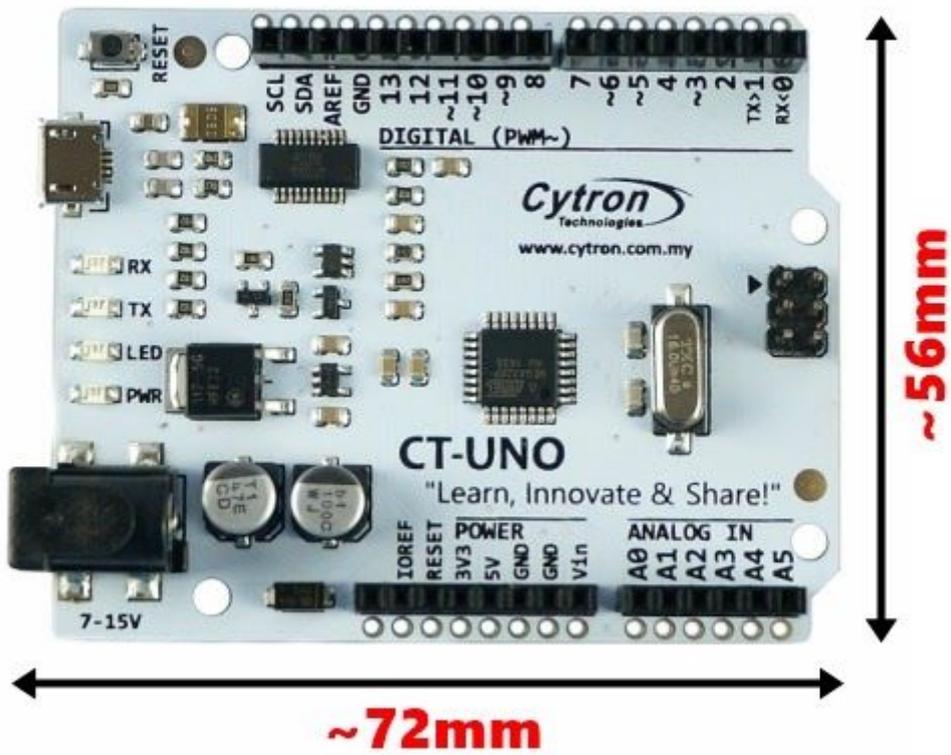
[CT-UNO](#) is designed to offer starting up platform for development. The specification of ATmega328p used should be referred.

Absolute Maximum Rating

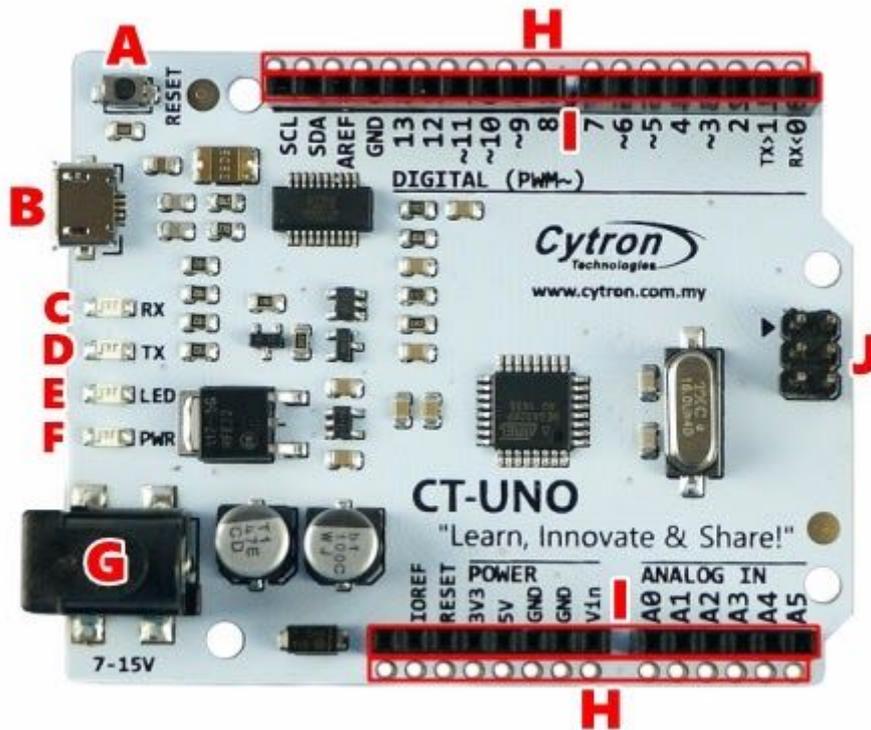
Parameter	Min	Max	Unit
Input Voltage via Adapter (Recommended)	7	15	V
Input Voltage via Adapter (Limits)	6	20	V
$I_{MAX(5V)}$ (from on-board 5V Voltage regulator)*	-	1	A
$I_{MAX(3.3V)}$ (from on-board 3.3V Voltage regulator)	-	500	mA

* With V_{in} at 12V

4. DIMENSION



5. BOARD LAYOUT



LABEL	DESCRIPTION
A	Reset Button
B	Micro USB B Type Connector (Female)
C	RX LED Indicator (Serial)
D	TX LED Indicator (Serial)
E	Programmable LED
F	Power LED Indicator
G	Adapter Socket (2.1mm)
H	Extra Pads
I	Arduino R3 Standard Header
J	ISP Header Pin

Reset Button

Reset button can be used to reset/restart the CT-UNO program.

Micro USB B Type Connector (Female)

This connector is for USB connection to upload program or power up via USB cable. A USB micro-B type cable is needed.

RX LED Indicator (Serial)

RX LED lights up when there have data transfer from USB to ATmega328.

TX LED Indicator (Serial)

TX LED lights up when there have data transfer from ATmega328 to USB.

Programmable LED

Programmable LED is active HIGH and it is connected to pin 13.

Power LED Indicator

Power LED will light ON once the board is powered.

Adapter Socket (2.1mm)

DC power adaptor socket for user to plug in DC adapter. The input voltage should be ranged from 7 to 15V.

Extra Pads

This extra pad allow CT-UNO to be stacked on strip/donut board.

Arduino R3 Standard Header

CT-UNO can be stacked with Arduino shield.

ISP Header Pin

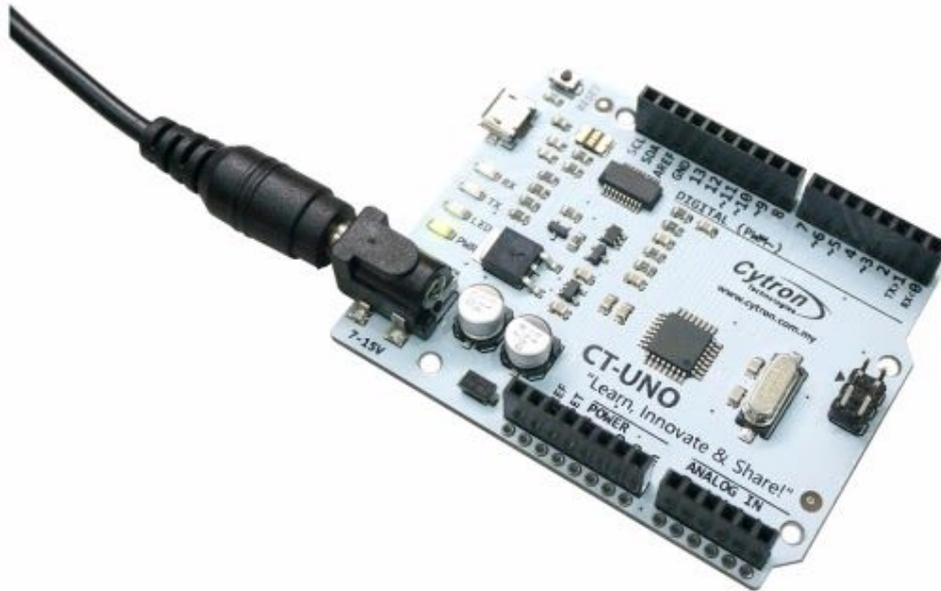
User can upload Arduino Uno bootloader firmware using AVR programmer (e.g. AVR USBasp) through this pin.

6. HARDWARE INSTALLATION

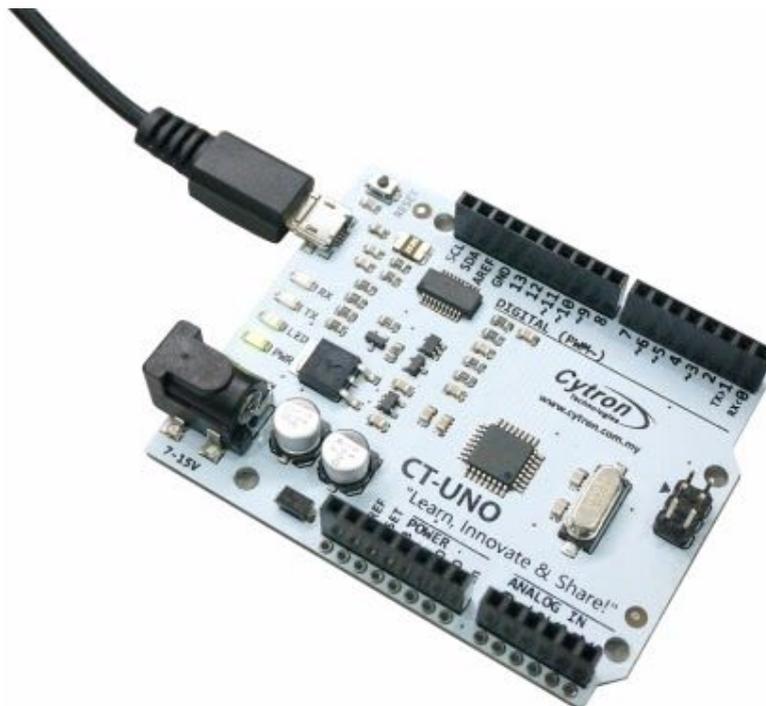
6.1 CT-UNO power supply

[CT-UNO](#) power source is either from [12V power adapter](#) (via DC jack) or [USB cable](#). If CT-UNO is powered using both supply (12V adapter and USB cable) it will automatically choose power from adapter.

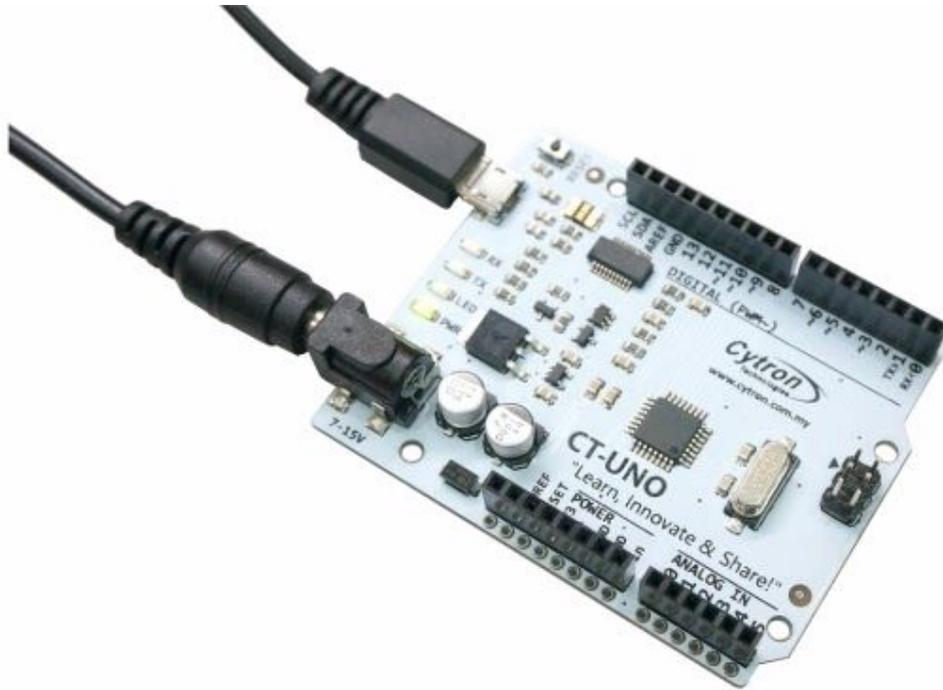
- CT-UNO is being powered using adapter.



- CT-UNO is being powered using USB cable.

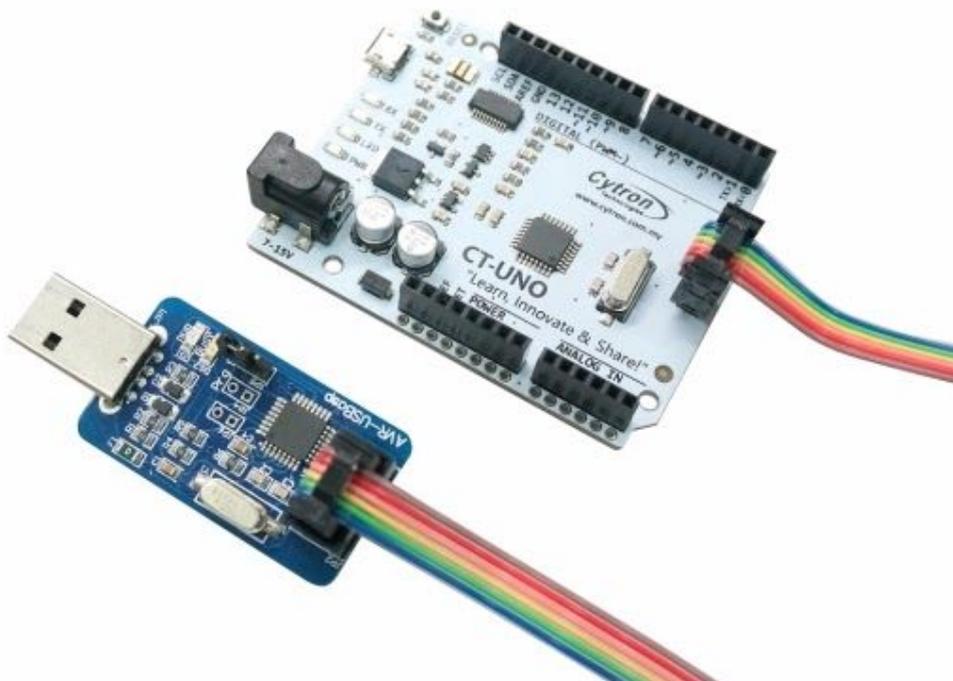


- If [CT-UNO](#) is powered with both 12V Power adapter and USB cable, it will automatically choose power from power adapter.



6.2 Downloading bootloader firmware

[CT-UNO](#) provide ISP for user uploading Arduino Uno bootloader firmware. User can use AVR programmer (e.g. [AVR USBasp](#)) to upload firmware to ATmega328p.

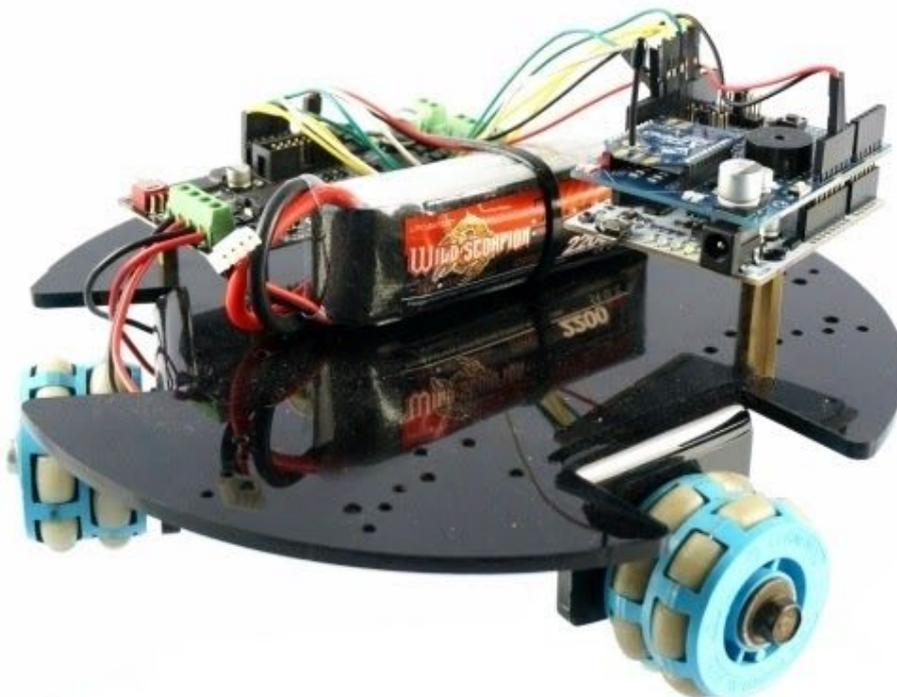


6.3 Interface CT-UNO

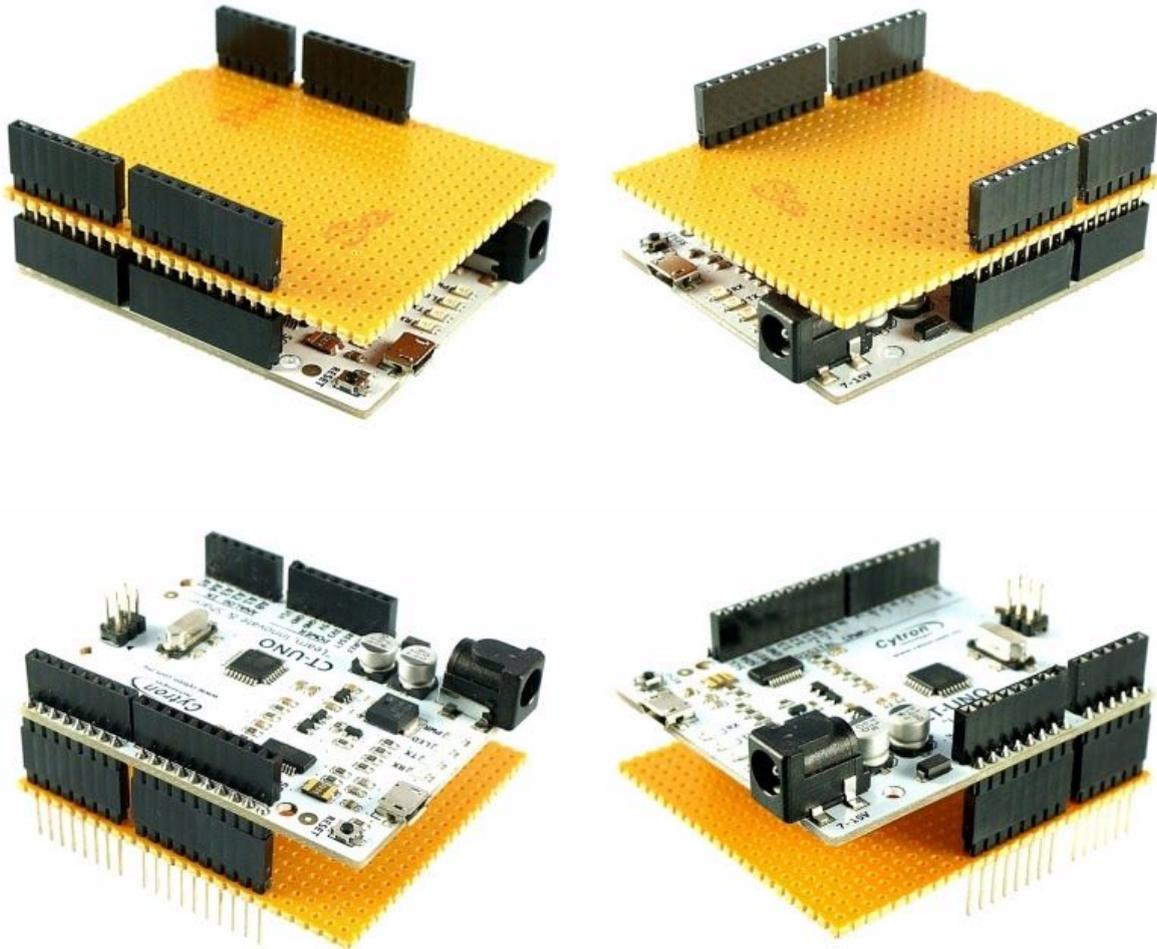
- [CT-UNO](#) is Arduino Uno compatible, so it can be stacked with all Arduino UNO compatible shields. Below is example [LCD Keypad shield](#) stacked onto CT-UNO.



- This is example of wireless remote mobile omni robot that uses CT-UNO, [SHIELD-XBEE](#) and FD04A-R2 board.



- [CT-UNO](#) can also be stacked onto standard (0.1" pitch to pitch) [strip/donut board](#). User need to solder header pins at outer side (left and right) to stack CT-UNO onto strip/donut board.



7. GETTING STARTED

7.1 Get a CT-UNO board and USB cable

You will need a [CT-UNO](#) and [USB Micro B Cable](#) to start.

7.2 Download the Arduino Environment

Get the latest Arduino IDE from <http://arduino.cc/en/Main/Software>.

When the download finishes, unzip the downloaded file. Make sure to preserve the folder structure. Double-click the folder to open it. There should be a few files and sub-folders inside.

7.3 Connect the CT-UNO

[CT-UNO](#) automatically draw power from either the USB connection to the computer or an external power supply. To start, just connect CT-UNO board to laptop/computer using USB micro B cable. The PWR LED (green) will light up to indicate the board are being powered.

7.4 Install the drivers

- Plug in your board and wait for Windows to begin it's driver installation process. After a few moments, the process will fail, despite its best efforts. If the driver installation succeed, it means you already use FTDI device with your computer before.
- In the case of fail, you can download the latest FTDI driver on FTDI website. Choose appropriate operating system. (<http://www.ftdichip.com/Drivers/VCP.htm>). After download is complete, proceed with the installation.
- If the driver installation succeed, you should have the COM port number for your CT-UNO board.

7.5 Launch the Arduino IDE

Double click on arduino.exe.



7.6 Open blink example

Go to **Files** -> **Examples** -> **01.Basics** -> **Blink**.

7.7 Select your board

Go to **Tools** -> **Board** -> **Arduino Uno**.

7.8 Select CT-UNO serial port number

Go to **Tools** -> **Serial Port** -> select your CT-UNO COM port number.

7.9 Upload the program

- Now, simply click the "Upload" button in the environment. Wait a few seconds - you should see the RX and TX leds on the board flashing. If the upload is successful, the message "Done uploading." will appear in the status bar.
- A few seconds after the upload finishes, you should see the pin 13 (L) LED on the board start to blink (in orange). If it does, congratulations! You've gotten CT-UNO up-and-running.

8. WARRANTY

- Product warranty is valid for 12 months.
- Warranty only applies to manufacturing defect.
- Damaged caused by misuse is not covered under warranty
- Warranty does not cover freight cost for both ways.

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