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traffic light DIY Kit Manual

No Prior Experience Required

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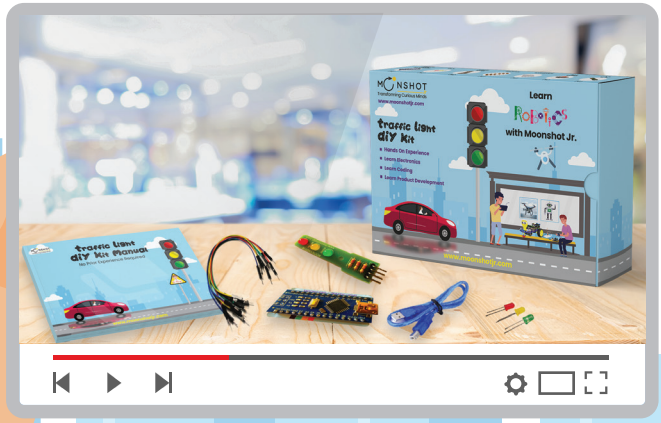
DO YOU EVER WONDER HOW A TRAFFIC LIGHT WORKS AND THE SOFTWARE BEHIND IT ?

The Moonshot Jr Traffic Light kit will help you understand how traffic lights work in a fun and creative way, let us get our hands on this kit and understand how it works. We are going to have lots of fun working and learning on the traffic light kit today.

UNPACKING THE KIT

Visit our Tech Corner Blog at
https://moonpreneur.com/tech-corner/moonshot-jr-traffic-light-kit/
to view an online copy of this traffic light document



LIST OF ITEMS

Here is the list of items you will find as soon as you unpack the kit.

Controller Board - TL001

USB Cable - TL002

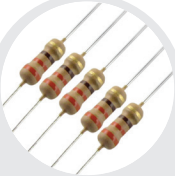
Mooncard - TL003

Traffic Light Board x 1 - TL004

Connection Wires - TL005

Bread Board - TL006

LEDs (3 Quantity) - TL007



Resistors 5x - TL008

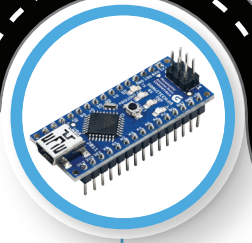
Push Button - TL009

User Manual - TL010

LET'S START

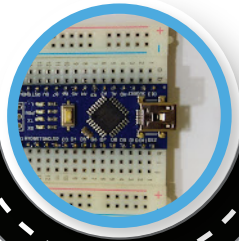
Step 1

Open the kit and find the Controller board (TL001 - It is an Arduino Nano Compatible Board) . The Controller board has the Software that will control the traffic light.



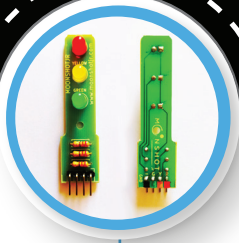
Step 2

Insert the Controller Board (TL001) in the Bread Board(TL006). Ensure that the USB connector is at the edge of the Bread Board and the pins are aligning, as shown in the image below.



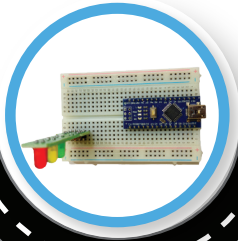
Step 3

Find the Traffic Light Board (TL004) in the kit, it has 4 colored pins at one end. In the next step we will be connecting the 4 pins with the controller board using the provided wires.

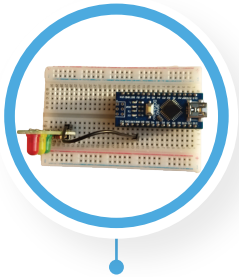


Step 4

Insert the Traffic Light Board (TL004) in the breadboard, as indicated.

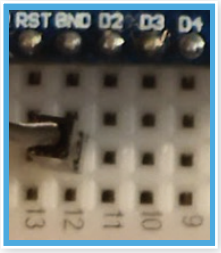


Step 5



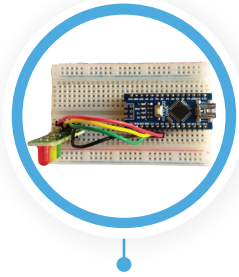
Use a black (or any other color) wire and insert one end to an empty hole in the breadboard in **front of the GND pin of the controller board.**

Insert the other end of the wire in the empty hole on the breadboard in **front of the traffic light board's black pin.**



Make sure the end of the wire is inserted in front of the GND pin of the controller board.

Step 6



Repeat the previous process for the remaining pins.

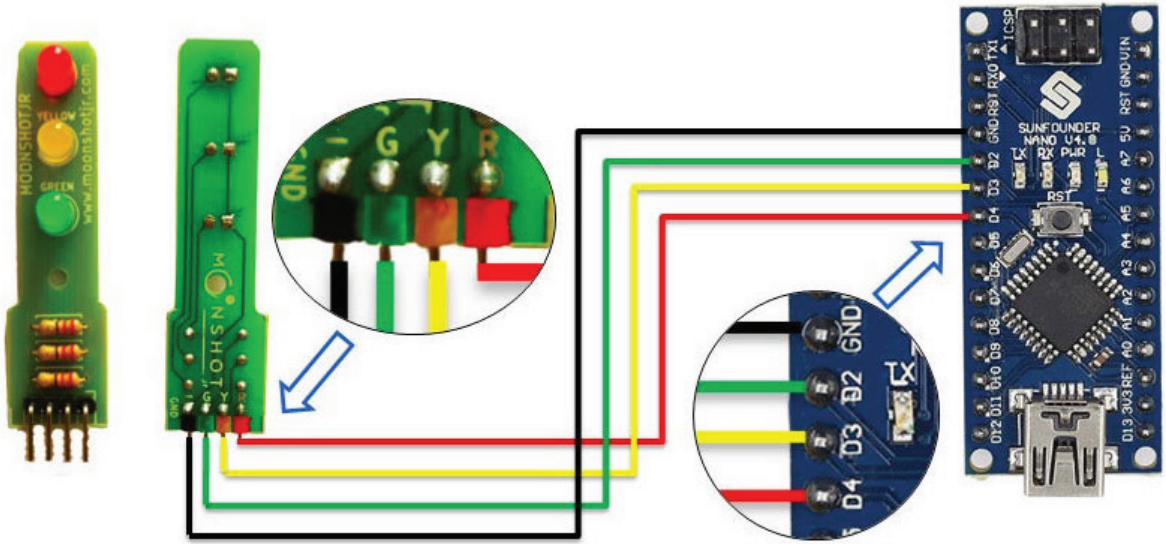
The Red wire connects to ***pin D4*** of the controller board.

The Yellow wire connects to ***pin D3*** of the controller board.

The Green wire connects to ***pin D2*** of the controller board.

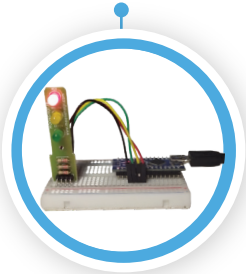
WIRE	*TRAFFIC BOARD*	*CONTROLLER BOARD*
RED	*RED*	*D4*
YELLOW	*YELLOW*	*D3*
GREEN	*GREEN*	*D2*
BLACK	*BLACK*	*GND*

This is the scheme of connection, note that the connection has to be made through the breadboard.



Step 7

Insert USB Cable into the connector of the controller board. Connect the other end of the cable in the USB Port of your computer or laptop.



Did you see the traffic lights glow in a particular order?

Have you thought about what was inside the Controller board that made the traffic lights work?

https://moonpreneur.com/book-a-free-trial-m/

Let us try to see how the software works. We will need to install the Arduino IDE first, it is a software that allows us to create, modify and upload software on the controller board. You will be able to learn the above steps and more things in great detail in our free trial class. You can sign up for the free trial class by clicking on the link given below.

Step 8a

Go to *https://www.arduino.cc/en/software* and download the latest version of Arduino IDE, depending on which system you use (Windows, Mac).

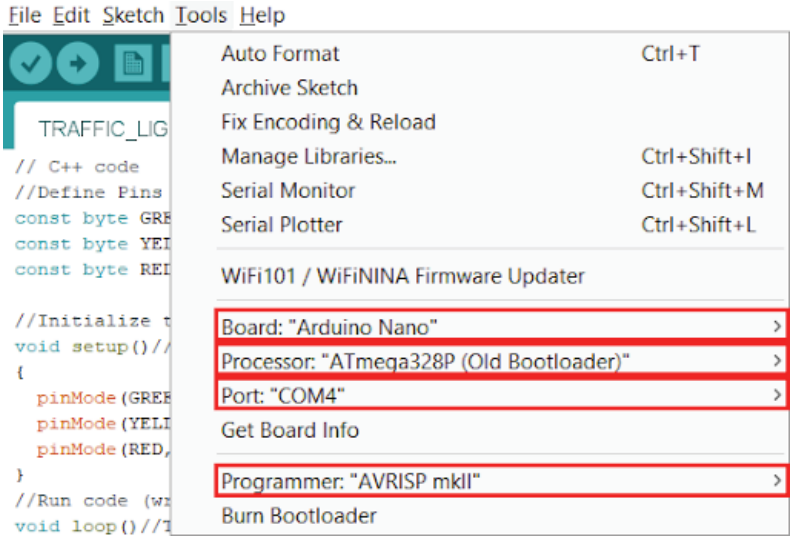
Step 8b

After Installing the Arduino IDE, connect the Arduino board to your computer.

After starting the Arduino IDE. Click on tools to reveal this menu:

Refer to the above picture, and follow these steps

- Hover on Board and Select **Arduino Nano**
- Select **ATmega328P** (Old Bootloader) as the Processor.
- Select the correct Port (e.g. COM4).
- Make sure the Programmer is set to **AVRISP mkII**.

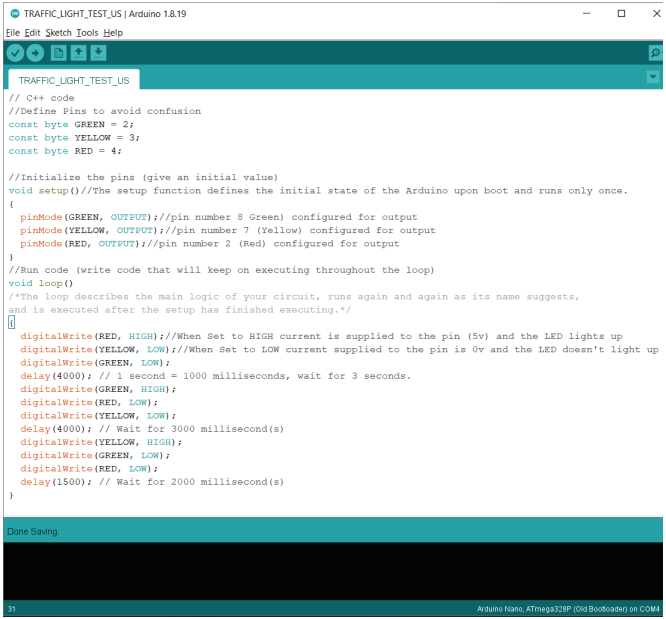


Step 8c

Visit *https://moonpreneur.com/tech-corner/moonshot-jr-traffic-light-kit/* to copy the working code for the traffic light.
Alternatively, you can scan the QR code given below.

Step 8d

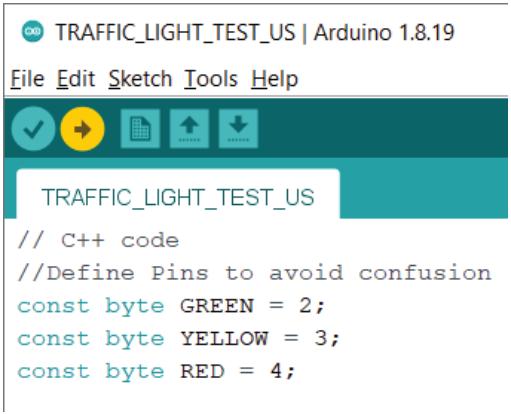
Paste the code in the editor.



Step 8e

Upload it to the arduino board by clicking on the upload button highlighted in the yellow color in the image below.
The code will be compiled and uploaded on the board. After the code has been uploaded on the arduino board the traffic light starts functioning.

Did you notice the green light stays on for a longer period of time?



NEXT STEP

Do you want to learn more about automation and how you can make a smart Traffic Light and more...

Stop here and register for a free trial class to know how you could actually do that.

Visit Free trial class at
https://moonpreneur.com/book-a-free-trial-m/

ADDITIONAL EXERCISE

Please try the Manual for 13 to 15 Age groups.