NSCET E-Transport

HARDWARE DOCUMENTATION

iOT E-Transport ?

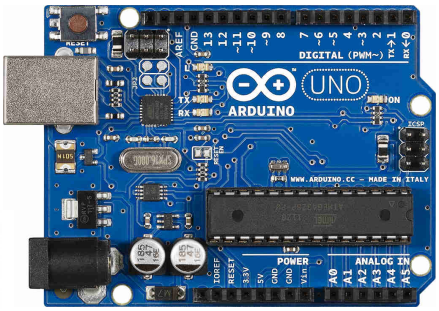
Why we Need iOT ?

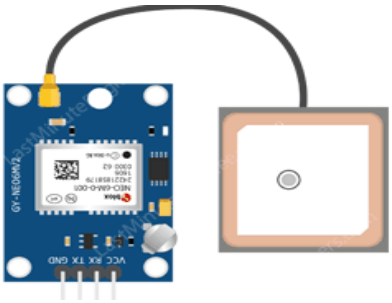
iOT Internet of Things. Our device is connected with the cellular data and the GPS Satellite to get the live location of Bus. Without any human intraction the device will helps us to get the location of Bus which is more efficient then a man power

Our AIM in the Transport System ?

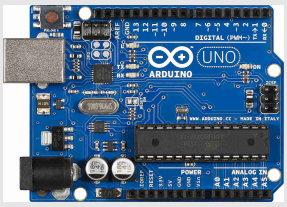
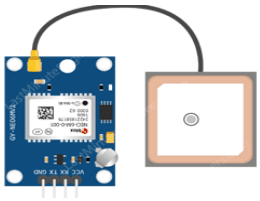
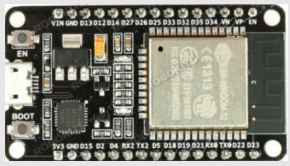
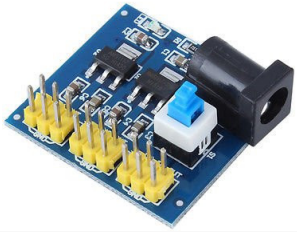
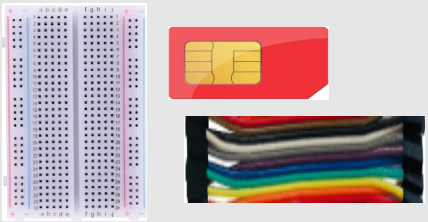
Bus Tracker with automated attendance management system. An Iot Device is installed in bus that give the location of bus to the specific bus student which helps the studens to find exactly where the bus and helps to catch the bus as eaarly as possibile. For the faculty attendance the current system is upgraded by the latet technology It will be digitalized

An specific mobile application will be designed and developed as much privilage according who logging in. Using that Application student can able to track their bus route and bus timing and the faculty can mark attendence by their mobile phone which is less time consuming and with high efficiency





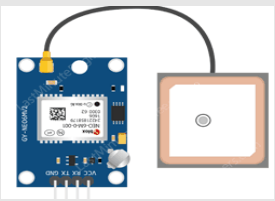
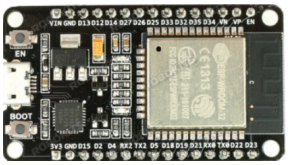
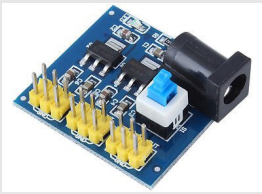
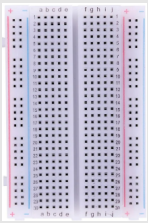
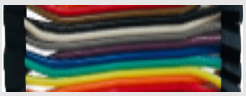
Development Cost

Item	Name & Qty	Price
	Ardino Uno [x 1] Data cabel [x 1]	1x655 = Rs. 655 1 x 50 = Rs. 50
	Neo 6M [x 3]	3 x 265 = Rs. 795
	ESP32 Dev [x 1]	1 x 380 = Rs. 380
	DC – DC [x 1]	1 x 80 = Rs. 80
	GSM SIM800L [x 1]	1 x 615 = Rs. 615
	6V 1A Power [x 1[	1 x 150 = Rs. 150
	Breadboard [x 1] Jumper wire [x 25] GSM Simcard [x 1]	1 x 42 = Rs. 42 25 x 2 = Rs. 50 1x 200 = Rs. 200

TOTAL COST : Rs. 3017.00

https://www.electronicscomp.com

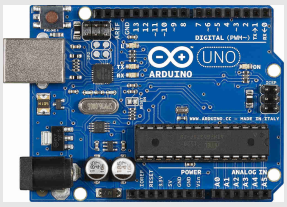
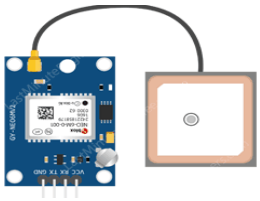
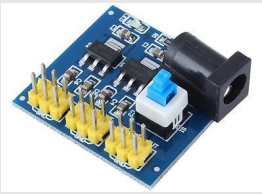
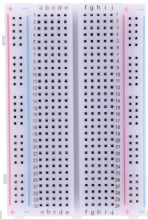
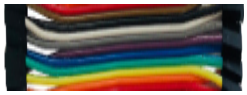
WI-FI Product Cost

Item	Name & Qty	Price
	Neo 6M [x 1]	1 x 265 = Rs. 265
	ESP32 Dev [x 1]	1 x 380 = Rs. 380
	DC – DC [x 1]	1 x 80 = Rs. 80
	6V 1A Power [x 1]	1 x 150 = Rs. 150
 	Breadboard [x 1] Jumper wire [x 4]	1 x 42 = Rs. 42 4 x 2 = Rs. 8

*** Require Hotspot [Cost Rs.1500 - 2000]**

TOTAL COST : Rs. 2625.00

GSM Product Cost

Item	Name & Qty	Price
	Ardino Uno [x 1]	1x655 = Rs. 655
	Neo 6M [x 1]	1 x 265 = Rs. 265
	DC – DC [x 1]	1 x 80 = Rs. 80
	GSM SIM800L [x 1]	1 x 615 = Rs. 615
	6V 1A Power [x 1[	1 x 150 = Rs. 150
 	Breadboard [x 1] Jumper wire [x 10] GSM Simcard [x 1]	1 x 42 = Rs. 42 10 x 2 = Rs. 20 1x 100 = Rs. 100

*** Subscribe to the SIM card cost less than 100 per month**

TOTAL COST : Rs. 1925.00

HARDWARE DETAILS

ESP32 Development Board with Wifi and Bluetooth

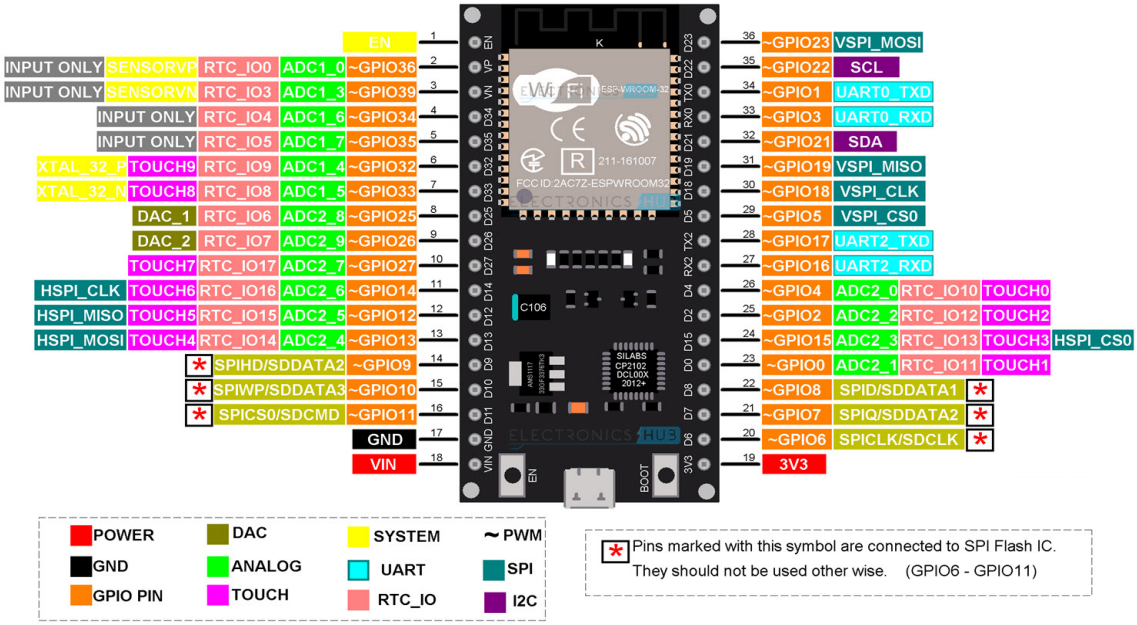
ESP32 Development board is based on the ESP WROOM32 WIFI + BLE Module.It's a low-footprint, minimal system development board powered by the latest ESP-WROOM-32 module and can be easily inserted into a solderless breadboard.

It contains the entire basic support circuitry for the ESP-WROOM-32, including the USB-UART bridge, reset- and boot-mode buttons, LDO regulator and a micro-USB connector. Every important GPIO is available to the developer.

The ESP32's operating voltage range is 2.2 to 3.6V. Under normal operation the ESP32 Thing will power the chip at 3.3V. The I/O pins are not 5V-tolerant! If you interface the board with 5V (or higher) components, you'll need to do some level shifting.

Features:-

- Small volume, easily embeded to other products
- Strong function with support LWIP Protocol, Freertos
- Suppporting three modes : AP, STA, and AP+STA
- Supporting Lua program, easily to develop
- Includes CP2102 USB-UART bridge



HARDWARE DETAILS

NEO-6M GPS Module

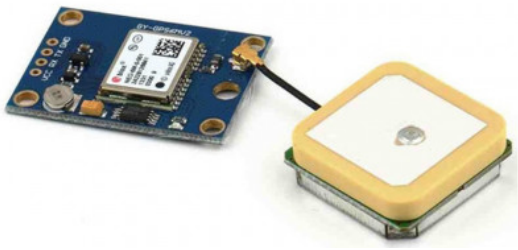
This is a complete GPS module that is based on the NEO-6M. This unit uses the latest technology to give the best possible positioning information and includes a larger built-in 25 x 25mm active GPS antenna with a UART TTL socket

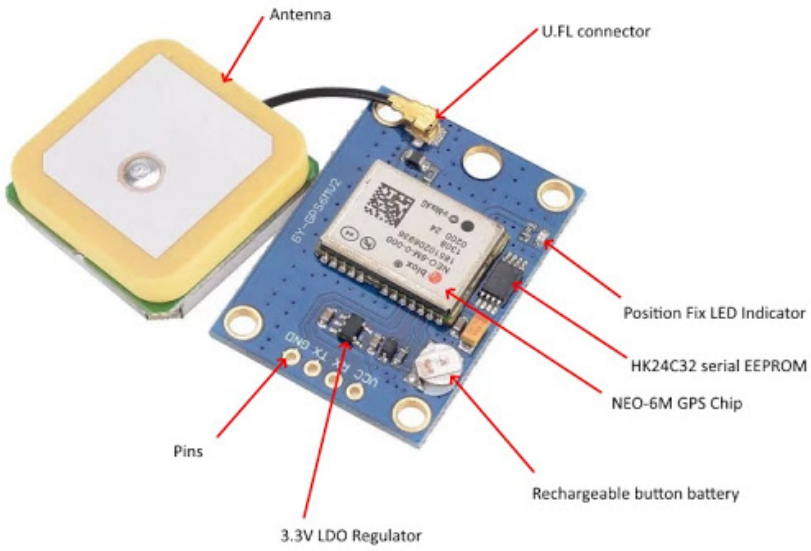
Features :-

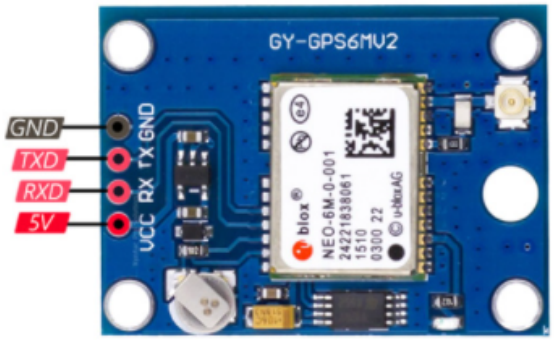
- 5Hz position update rate
- Operating temperature range: -40 TO 85°CUART TTL socket
- EEPROM to save configuration settings
- Rechargeable battery for Backup
- The cold start time of 38 s and Hot start time of 1 s
- Supply voltage: 3.3 V
- Configurable from 4800 Baud to 115200 Baud rates. (default 9600)
- SuperSense ® Indoor GPS: -162 dBm tracking sensitivity
- Support SBAS (WAAS, EGNOS, MSAS, GAGAN)
- Separated 18X18mm GPS antenna

The operating voltage of the NEO-6M chip ranges from 2.7 to 3.6V. But the good news is, this module comes with MICREL's MIC5205 Ultra-Low Dropout 3V3 regulator.

The logic pins are also 5-volt tolerant, so we can easily connect it to Arduino or any 5V logic microcontroller without using a logic level converter.







HARDWARE DETAILS

SIM800L V2.0 5V Wireless GSM GPRS MODULE

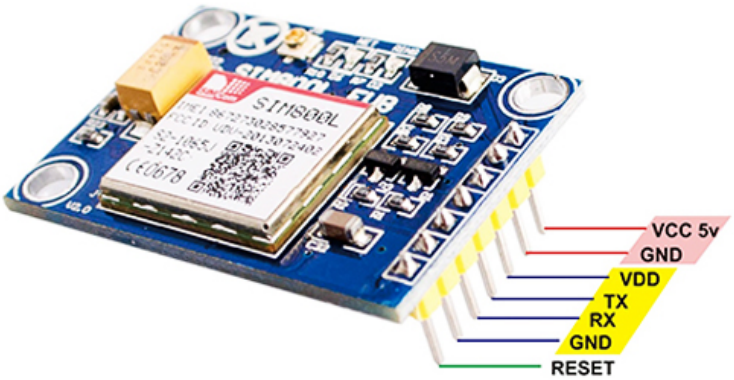
SIM800L V2.0 5V Wireless GSM GPRS MODULE power supply for 5 v, computer debug USB to TTL serial port. Power to the output current of 800 ma, TTL serial interface is compatible with 3.3 V and 5 V micro-controller, can be directly after purchase and single-chip computer connection.

Features :-

- Network support: Quad-Band 850/900/1800/1900 MHz works on GSMnetworks in all countries across the world.
- TTL serial interface compatible with 3.3V and 5V MCU
- The small size is suitable for all kinds of sleeve belt type and embedded.
- playing card slot, convenient change mobile phone card.Can side reserve replacement cell phone bayonet into the box.
- using the IPX interface can arbitrarily change the antenna. The default PCB antenna greatly reduces: use the space.
- the board with gold plated board, more stable performance.
- when wiring neat guarantee board running more stable.

while SIM800L V.2 GSM/GPRS module already has a built-in regulator circuit and TTL level converter on the board.

Input Supply Voltage (VDC) 5 - 20



HARDWARE DETAILS

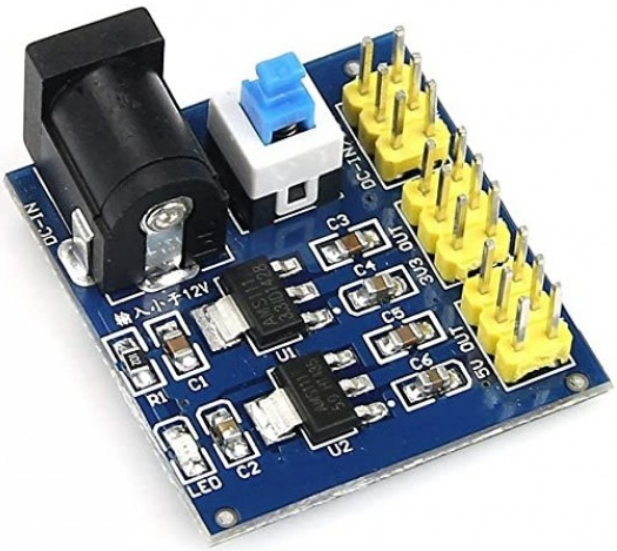
Adapter | DC-DC Regulator | Jumper Wire

Adapter - 6 Volt 1 Amp Power Adapter takes an AC INPUT of 100-240V and gives 6V 1A DC output

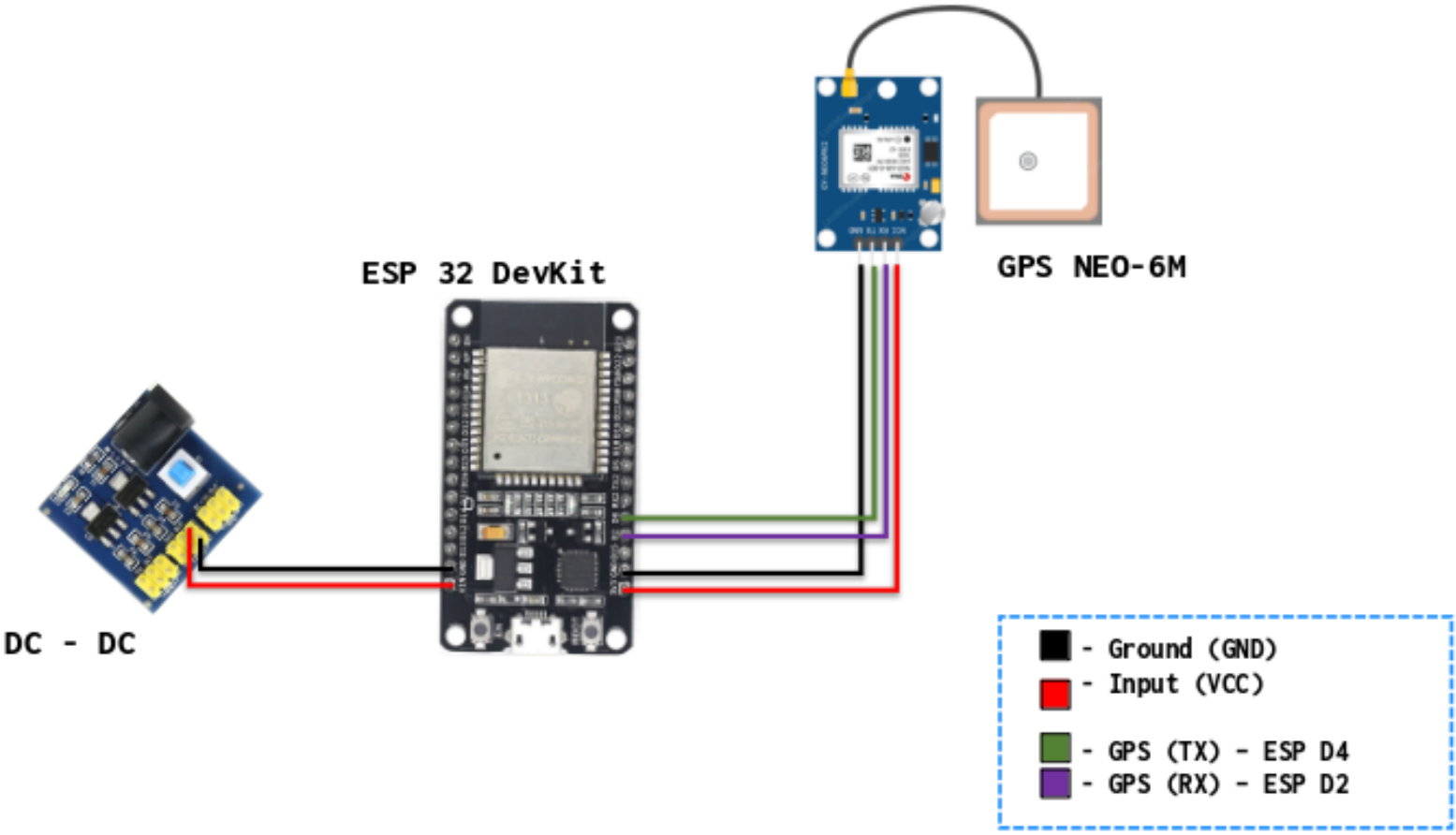
Regulator - This DC-DC 12V to 3.3V 5V 12V Power Module Multi Output Voltage Conversion is also known as Buck Converter or also as Step-Down Voltage Converter. The module is capable of altering the output of the power source/supply before supplying it to the load so as to deliver the specified power to your load.

The device is very flexible and easy to use. The module is powered by 6V to 12V DC input, and provides three fixed DC outputs: 3.3V, 5.0V, and a third output which is a direct connection to the DC input(input to the module).

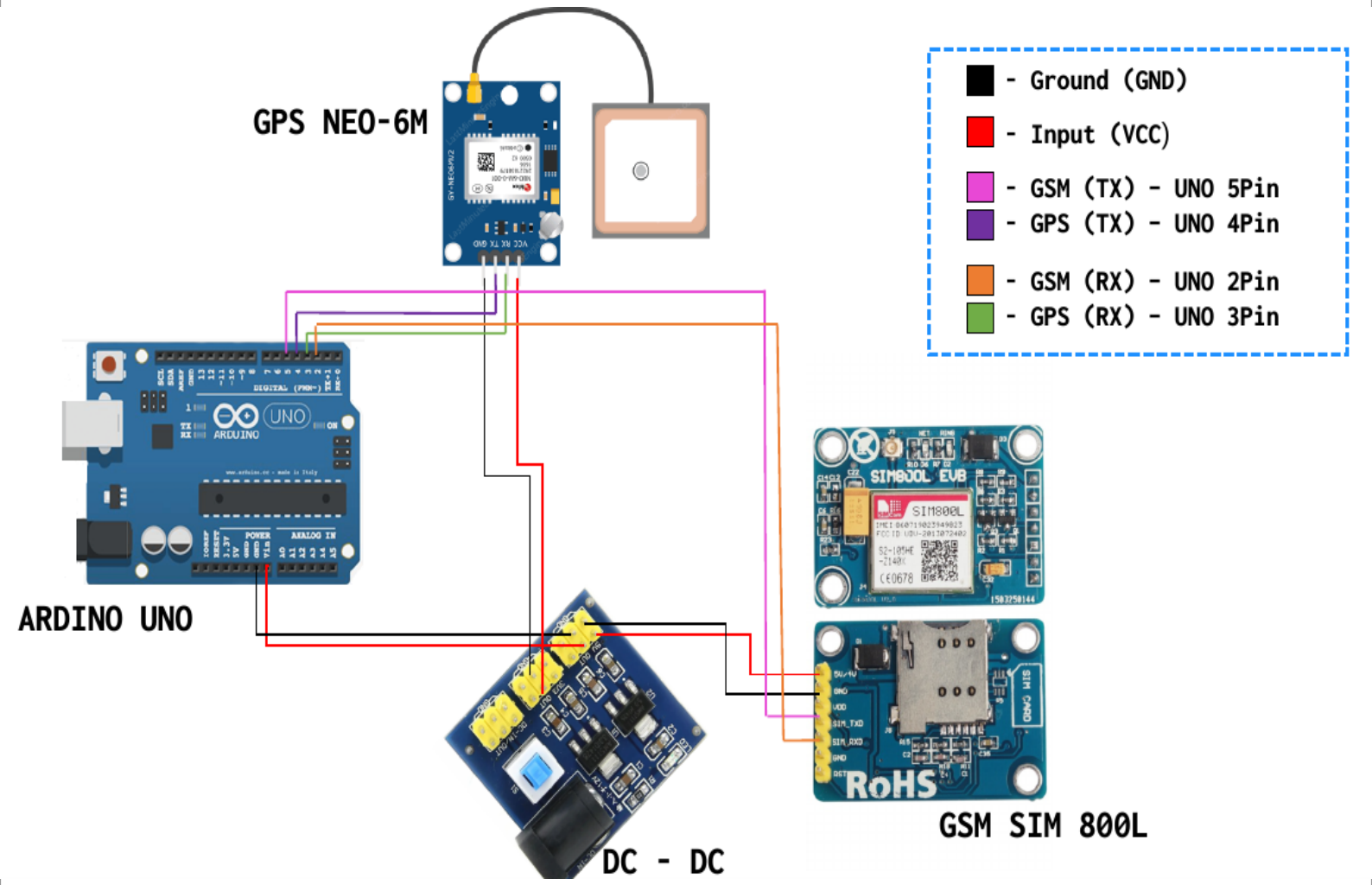
Jumper Wire - A jumper wire is an electric wire that connects remote electric circuits used for printed circuit boards. By attaching a jumper wire on the circuit, it can be short-circuited and short-cut (jump) to the electric circuit.



WIFI CIRCUIT DIAGRAM



GSM CIRCUIT DIAGRAM



MUKILAN | TENSH KUMAR | SANTHOSH | KEVIN ARUL RAJA

Our Team - https://github.com/Binary-Beast-01
Server Side - https://github.com/Binary-Beast-01/NSCET-TRANSPORT-ESERVER
Mobile App - https://github.com/Binary-Beast-01/NSCET-TRANSPORT-EAPP

Guided by,
Mr.Mathalairaj CSE-HOD