Scientech
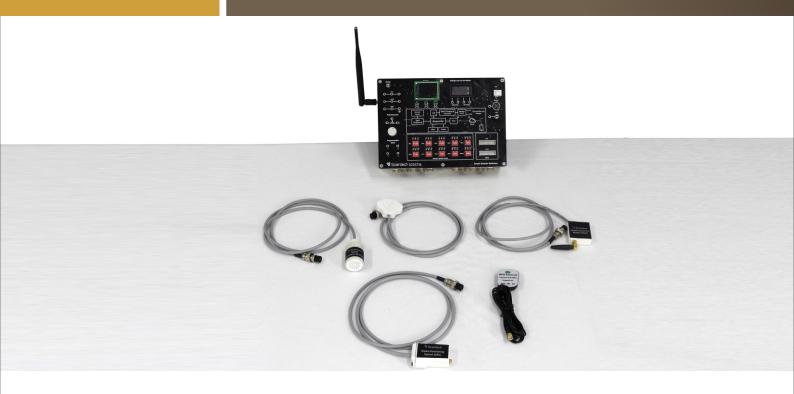
With the advancement in the technologies it has been a constant requirement to update the living. The vehicle will be tracked accurately and powerfully yet simply .It is great for both personal as well as business use.

A Smart Transportation Monitoring combines the use of automatic vehicle location in individual vehicles with software that collects these fleet data for a comprehensive picture of vehicle locations. Modern vehicle tracking systems commonly use GPS technology for locating the vehicle, but other types of automatic vehicle location technology can also be used. Vehicle information can be viewed on electronic maps via the Internet. Urban public transit authorities are an increasingly common user of vehicle tracking systems, particularly in large cities.

Vehicle tracking has been accomplished by installing a box into the vehicle, either self-powered with a battery or wired into the vehicle's power system. It consists of GPS, GSM, temperature and humidity sensor and accelerometer. This system will give the location in the form of latitude and longitude along with temperature, humidity and readings of accelerometer as SMS in the registered number and in the local cloud at every particular interval of time.

Features

- Platform to learn, explore, and develop IoT skills
- GPS Module along with antenna for tracking the real time location of the vehicle.
- GSM to send text message and use GPRS for cloud usage.
- MPU6050 for the accelerometer readings.
- Battery smart sensor gateway for sensor connectivity.
- For uploading the program, on board USB is provided.
- On board Variable potentiometer
- On board LED
- Buzzer and input/output switch for testing.

- Sensor gateway with color LCD display
- Inbuilt Wi-Fi and zigbee for wireless communication
- On board Fault Switches for Sensors
- On board DC Power Supply plug in modules and Inbuilt Li-Ion battery
- Dedicated 3.3v and 5v output ports
- 3 Tact switches for inputs
- 10 ports of Din Connector for sensors and actuators.
- On board charging and protection circuit for Battery
- Test points for Sensors with inbuilt Voltmeter and Ammeter
- Compact tabletop ergonomic design
- Ready experimental details
- User friendly, self-explanatory system.

Scope of Learning

- How to make basic LED blink program using Arduino
- How to make ADC and UART Programs
- Test program for onboard LCD
- Testing and understanding of Accelerometer sensor
- Testing and understanding of GPS module
- Testing and understanding of GSM module
- Testing and understanding of GSM AT commands
- Testing and understanding of GSM SMS send
- Testing and understanding of GSM GPRS
- To implement Arduino program and collect all the sensor data from Smart Sensor Gateway and send it to free cloud using ESP8266.
- To implement Arduino program and collect all the sensor data from Smart Sensor Gateway and send it using zigbee
- To make a program to receive data string from wireless node

Technical Specifications

Microcontroller	: ATMega2560
Sensors and Actuator connector	: 10nos.
Digital I/O Pins	: 34
Analog Input Pins	: 16
UART	: 2 nos.
I2C	: 1 no.
Switch faults	: 30nos.
Test points	: 30nos.
Power Supplies	: 5V and 3.3V
Variable potentiometer	: 1 no (10K)
Switches	: 3nos.
Digital Voltmeter and Ammeter	: 0 - 25V/10A
Buzzer and LED	: 1 no. each

Color LCD	: 1.77 inch
Battery	: 3.7V/4400mAh
USB	: 2.0
Wi-Fi Module	: 1no. (2.4GHz)
Zigbee Transceiver	: 2nos. (2.4GHz/63mW)
Flash Memory	: 256 KB of which 8 KB for bootloader
SRAM	: 8 KB
EEPROM	: 4 KB
Clock Speed	: 16 MHz
Node operating voltage	: 5V DC
GPS Module	:-161dBm of tracking sensitivity
GSM Module	: Supply voltage- 3.8V-4.2V
Accelerometer	: I2C Protocol
Interconnection for modules	: 2 mm patch cords and FRC cables
Power Supply	: 230V AC, 50/60Hz
Weight	: 3.5Kg (approximately)
Operating Conditions	: 0-40^{0}C, 85% RH

Package contains	: Quantity in nos.
Scientech Smart Sensor Gateway	1
GSM Module	1
GPS Receiver	1
Accelerometer	1
GSM Antenna	1
GPS Antenna	1
USB Xbee Receiver	1
Patch Cord	5
A to B Usb Cable	1
Power Adapter	1
Antenna	1

Subject to change Version 1.0