With the increase in world's population, crop and livestock management are one of the greatest concerns of the farmers. Development is sensor technology and Internet of Things (IoT) can make it possible for farmers to remotely monitor their livestock efficiently. Livestock Monitoring System is the perfect solution for these farmers. It consists of various IoT sensing and tracking devices like PIR, GPS, Bluetooth and RFID. These tracking devices can be mounted on the body of livestock and provide the farmer with important information like animal Identification, monitoring live births by detection of new offspring in the system, GPS location tracking to monitor herd, etc. By collecting various data and storing it in a database, analysis of all the parameters in real time becomes easier. Scientech 6205 LM provides comprehensive understanding of the actual Livestock Monitoring System by allowing users to test and explore interfacing of various sensors.

Features

- Platform to learn, explore, and develop IoT skills.
- Arduino software compatible hardware.
- GPS Module along with antenna for tracking the real time location of the livestock.
- Bluetooth Tag with voice recording and anti-lost alarm.
- RFID Module and RFID Tags for identification of livestock.
- PIR sensor for detection of motion.
- Sensor gateway with color LCD display.
- Buzzer and input/output switch for testing.

- Wi-Fi connectivity and android app for field testing.
- Software to view sensor's real time graph analysis on PC and mobile.
- 10 din sockets for sensors and actuators interface.
- On board charging and protection circuit for battery.
- Signal test points and switch fault.
- 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 on board LCD
- Testing and understanding of RFID module
- Testing and understanding of PIR sensor
- Testing and understanding of GPS module

- To receive data string wirelessly from Smart sensor gateway node using Zigbee and Display it in Serial Terminal of Arduino.
- To implement Arduino program and collect all the sensor data from Smart Sensor Gateway and send it to free cloud using ESP8266.
- To receive data string from wireless node using python

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 POT	:	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
PIR Sensor	:	TTL
GPS Module	:	TTL
Bluetooth Tag	:	≤25m (operating range)
RFID Module with 10 tags	:	13.56 MHz ISM Band