



SENSORS FOR LIVESTOCK MONITORING MODEL-LIVESTOCK100

This trainer has been designed with a view to provide practical and experimental knowledge Sensors programming for IoT based Live Stock Monitoring Applications on agriculture with Arduino IOT Board. Livestock Management entails managing Cattle and Supervising Farm Workers. Livestock management calls for knowledge of Animal Technology and Animal Husbandry, in addition to accurate commercial enterprise sense. Many livestock Managers have to additionally maintain economic information for his or her operations.



SPECIFICATIONS

1. Hardware

Following Parts and Modules are assembled on Single PCB of size - 18 Inch x 15 Inch

1. Arduino Microcontroller Board

1. Arduino Uno Microcontroller board based on the ATMEGA328P
2. 14 Digital Input / Output pins (of which 6 provide PWM output)
3. 16 MHz Ceramic Resonator
4. Flash Memory : 16KB (of which 2KB used by boot loader)
5. USB Port
6. Power Jack – 9V DC, 1A

2. Sensors & Other Components

1. Passive RFID Reader and Writer
2. Active RFID Reader and Writer
3. Bluetooth Tag Reader Module
4. Passive RFID Tags
5. Active RFID Tags
6. Bluetooth Tags
7. PIR Motion Sensor
8. GPS Module with Big GPS Antenna : 2.4 GHz

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Dealer:-

3. Modules and Hardware:

1. 20 X 4 - LCD Display
2. ESP32 Wifi Module
3. 2 mm interconnection Sockets

2. Accessories

1. USB Cable : 1 No
2. Ethernet Cable : 1 No
3. Micro USB to USB cable for ESP32 : 1 No
4. Power Supply Adaptor : +9V DC, 1A
5. Jumper wires : 50 Nos.
6. Pen Drive with Software, Library, Driver, Codes, Soft Copy of Manual and Mobile App : 16 GB
7. Printed Practical Manual : 1 No.
8. E-Books for Agriculture IOT Subject : 10 Nos. in PDF Format
9. Mp4 Video Class for IOT Subject : 40 Nos
10. Excitation accessories for each sensor
Car Toys to simulate Cattle and Animals

3. Cabinet and PCB

The complete circuit diagram is screen printed on component side of the PCB with circuit and Parts at the same place. The PCB with components on front side is fitted in elegant wooden box having lock and key arrangement. The acrylic cover is fitted on PCB to safeguard parts. It works on 230 V AC Supply.

EXPERIMENTS

A. Theory Experiments for Arduino Board

1. To understand theory and working of Arduino Operating software.
2. To understand Pin and Connection Diagram of Arduino.
3. To understand USB Interface for Arduino.
4. To understand 20 x 4 LCD Display.

B. Theory of ESP32 and GPS Wireless Module

5. To understand theory and working of ESP32
6. To understand Operating System for ESP32
7. To understand Pin and Connection Diagram of ESP32
8. To understand USB Interface for ESP32
9. To understand theory and working of GPS Module

C. Theory Experiments for Sensors

10. To understand theory and working of PIR sensor
11. To understand theory and working of Passive RFID Reader and Writer
12. To understand theory and working of Active RFID Reader and Writer
13. To understand theory and working of Bluetooth Tag Reader Module
14. To understand theory and working of Passive RFID Tags
15. To understand theory and working of Active RFID Tags
16. To understand theory and working of Bluetooth Tags

D. Practical Experiments

17. To detect movement of a Cattle or Cow using PIR sensor
18. To detect location of a Cattle or Cow using GPS sensor
19. To count Numbers of Cattle or Cow by attaching Passive RFID tag on them and then reading by Passive RFID Reader and Writer
20. To count Numbers of Cattle or Cow by attaching Active RFID tag on them and then reading by Active RFID Reader and Writer
21. To count Numbers of Cattle or Cow by attaching Bluetooth Tracker tag on them and then reading by Bluetooth Tag Reader Module

E. Server, Cloud Configuration, IOT Gateway, Nodes and Mobile App Experiments

22. To send Cattle Count Data and Location using Wifi Wireless Node to Main Base IOT Receiver
23. To send and display Cattle Count Data and Location in a server Web Page
24. To send Cattle Count Data and Location to website webpage and store them into MySQL Server
25. To receive and show Cattle Count Data and Location on Android based Mobile App
26. To send and display Cattle Count Data and Location on website Smart Dashboard on a server.