WIRELESS SENSOR NETWORK and IOT TRAINER

MODEL WSN100S and IOT100S

This trainer has been designed with a view to provide theoretical & practical knowledge of Wireless Sensor Network Trainer using Raspberry-Pi controller board.

WSN100S

IOT100S

This trainer is used to send and receive sensor data by different wireless communication methods – like Bluetooth, Wifi, Zigbee, RF, GSM and GPS using Raspberry Microcontroller.

SPECIFICATIONS

1. IoT Hardware : -

4 Channel ADC for Voltages
1 Channel For Resistance Input
1 Channel 4-20ma Input
8 Nos.LED
TFT Color LCD
GSM Modem (SIM Not Included)
Motor Driver Circuit
Serial to USB Circuit
Wi-Fi Connectivity for IoT Gateway
Ethernet Connectivity for IoT Gateway
Bluetooth Connectivity
12C Interface
SPI Interface
RS485 Interface
Stepper Motor
On board Zigbee Coordinator

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Dealer:-

2. WSN Hardware

1.	Processor	:	64bit ARMv7 Quad Core Processor 1.2GHz
2.	Connectivity	:	802.11/b/g/n Wireless LAN Bluetooth 4.1, Zigbee,USB & Ethernet
3.	RAM	:	1GB
4.	Memory	:	16GB(upgradable)
5.	OS	:	Linux
6.	Ethernet	:	10/100 Base Ethernet socket
7.	Video Output	:	HDMI and Composite RCAAudio Output
8.	Audio Output	:	3.5mm jack
9.	USB	:	4 nos.
10.	Camera	:	15-pin MIPI Camera Serial Interface
11.	Memory Card	:	Push/Pull Micro
12.	LCD	:	Color TFT LCD
13.	Motor Driver	:	Stepper and DC Motor
14.	Analog Input	:	8 nos.
15.	Relay Output	:	4 nos.
16.	Buzzer Output	:	1 no.
17.	Zigbee Frequency	:	2.4 Ghz
18.	Power	:	5V, 2A
19.	Analog Input	:	8 nos.
20.	Digital Input	:	4 nos.
21.	I2C Communication	:	1 nos
22.	Solar Panel for Charging	:	1 nos
23.	Battery	:	3.7V / 4400mAH
24.	Communication	:	Zigbee 2.4 Ghz

3. Sensors

.	01. Temperature and Humidity	:	1 nos.
	02. Air Quality Sensor	:	1 nos.
	03. Soil Moisture	:	1 nos.
	04. Ambient Light Sensor	:	1 nos.
	05. Soil / Water temperature	:	1 nos.
	06. PIR Sensor	:	1 nos
	07. Leaf wetness	:	1 nos
	08. Watermark Soil Moisture	:	1 nos
	09. Water Conductivity	:	1 nos
	10. Alcohol Sensor	:	1 nos
	11. Dust sensor	:	1 nos

4. Accessories

HDMI Monitor	:	1 No
USB Mouse	:	1 No.
USB Key Board	:	1 No
USB HUB	:	1 No
HDMI Cable	:	1 No
Bluetooth	:	1 No
Camera Module	:	1 No
RS485 Kit	:	1 No
Android Tablet	:	Optional
Cloud Server - Static IP	:	Optional
Controller Software CD	:	2 Nos.
Controller Operating System CD	:	1 No.
Applications Codes CD	:	1 No.
USB Cables	:	2 Nos.
Connecting Wires / Jumpers	:	30 Nos.
Practical Manual	:	1 No.
SIM Card with GPRS is to be provided by you	:	1 No.
E-Books for WSN using Raspberry Pi	:	10 Nos. in PDF Format
Mp4 Video Class for WSN using Raspberry Pi	:	40 Nos

5. Note

Two Computer systems (Pentium IV 1.5GHz, 160GB HD, 1GB RAM) with One Serial Port and One USB are required to operate this trainer.

EXPERIMENTS

WSN100S TRAINER BOARD EXPERIMENTS

1. To make LED Blink
2. To measure Air Quality using Gas Sensor - Smoke Sensor
3. To detect Alcohol using Alcohol Sensor
4. To detect motion using PIR Sensor
5. To measure Temperature & Humidity using DHT11
6. To measure Watermark level using Water Soil Moisture Sensor
7. To measure Water Conductivity using Rain Sensor
8. To measure Leaf Wetness using Rain Sensor
9. To measure Dust using Dust Sensor
10. To measure Light using LDR Light Sensor
11. To measure Soil Moisture using Soil Moisture Sensor
12. To measure Temperature of Soil and Water using RTD temperature Sensor
13. To meausre Air Velocity using Anemometer without Raspeberyy Board

IOT100S TRAINER BOARD EXPERIMENTS

14. To demonstrate Push Button functionally by toggling LED
15. To demonstrate LED dimming using PWM and ADC
16. To control basic LED using Relay
17. To control Real Bulb using Relay
18. To operate DC Motor control
19. To operate Stepper Motor control
20. To use Audio Buzzer for output signal alarm
21. To record and play Video using Raspberry Pi Camera

WSN100S-IOT100S COMBINED BOARD EXPERIMENTS

22. To transmit and receive Sensor data using Zigbee Wireless Transmitter and Receiver
23. To Send SMS using GSM Gateway and receive it on Mobile
24. To Send Sensor data to Mobile using GSM Gateway
25. To transmit and receive Sensor data using Mobile App on Android Mobile
26. To receive live Sensor Data From Any Remote Location & View Them Through Internet
27. To transmit and receive Sensor data using Internet from One place to other place
28. To transmit and receive Sensor data using Web Server from One place to other place
29. To control bulb remotely through Mobile App showing Smart Home application