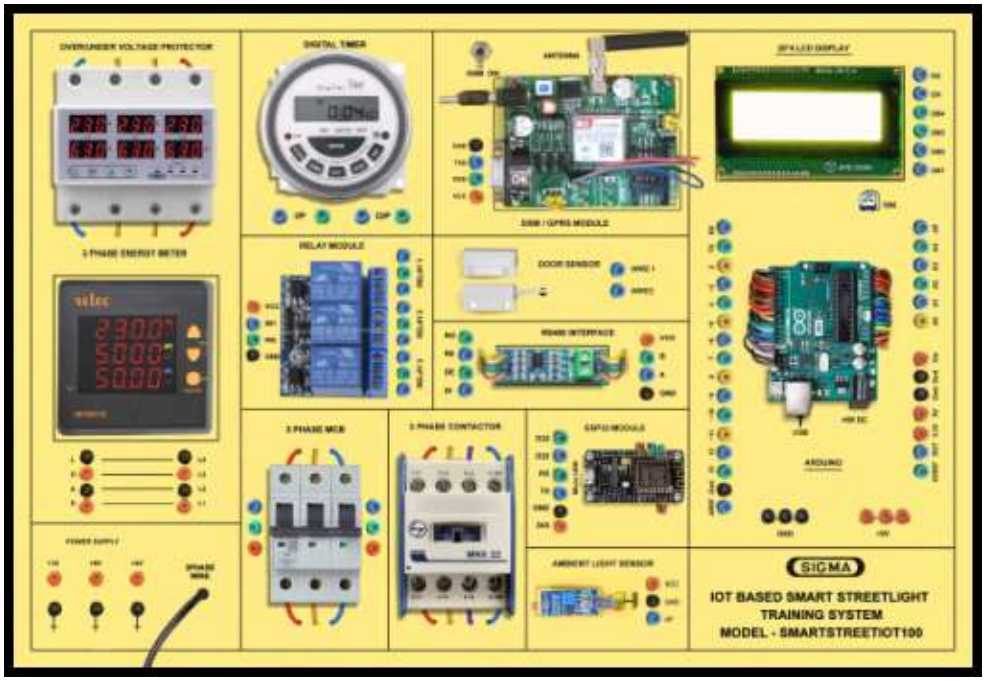
IOT BASED SMART STREETLIGHT SYSTEM

MODEL-SMARTSTREETIOT100

SPECIFICATIONS



This trainer has been designed with a view to provide practical and experimental knowledge Sensors programing for IoT based Smart Street Light system with Arduino IOT Board.

SPECIFICATIONS

A. Main Specs

1. Following Parts and Modules are assembled on Single PCB of size - 18 Inch x 15 Inch.
2. The complete circuit diagram is screen printed on component side of the PCB with circuit and Parts at the same place.
3. The PCB with components on front side is fitted in elegant wooden box having lock and key arrangement.
4. Modules and Parts should be removable without desodlering for easy repair / replacement
5. The acrylic cover is fitted on PCB to safeguard main parts

B. 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. USB Port
5. Power Jack – 9V DC, 1A

C. Sensors & Other Components

1. 3 Phase Digital Energy Meter MFM376 with class 1.0 accuracy and IS13779 certification
2. 3 Phase 415V Contactor
3. 1 Phase MCB
4. 3 Phase 415V MCB
5. Digital Timer Programmable Controller
6. 3 Phase 415V Automatic Over/Under Voltage Protector with Over Current Protection
7. Serial TTL to RS485 Converter – for RS Communication Port
8. 4 Digital Inputs for Door sensors as well as contactor feedback
9. 3 Relay outputs for switching of streetlight circuits
10. Door Sensor
11. LDR Sensor
12. SMC box with IP65 and IK10 ratings

D. Modules and Hardware:

1. 20 X 4 - LCD Display
2. Quad Band GSM/GPRS Module – 2.4 GHz
3. ESP32 Wifi Module
4. 2 mm interconnection Sockets.

E. Web Application

1. Responsive Web application for Smart streetlight management system having with map view based dashboard and individual system details

F. Accessories

1.	USB Cable	: 2 No
2.	Ethernet Cable	: 1 No
3.	Micro USB to USB cable for ESP32	: 1 No
4.	RS485 to USB TTL Connector	: 1 No
5.	Power Supply Adaptor	: 9V , 1A -1
6.	Jumper wires	: 30 Nos.
7.	Application Software and Driver CD	: 1 No.
8.	Practical Manual - Printed + Soft Copy	: 1 No.
9.	E-Books for IOT Subject	: 10 Nos. in PDF Format
10.	Mp4 Video Class for IOT Subject	: 40 Nos
11.	Excitation accessories for each sensor 230V AC Bulb	

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 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

C. Theory Experiments for Sensors

9. To understand theory of Door Sensor
10. To understand theory of LDR Sensor
11. To understand theory of 3 Channel Relays
12. To understand theory of 3 Phase Digital Energy Meter
13. To understand theory of 3 Phase 415V Contactor
14. To understand theory of 3 Phase 415V MCB
15. To understand theory of Digital Timer Programmable Controller
16. To understand theory of 3 Phase Automatic Over Voltage and Over Current Protection
17. To understand theory of Serial TTL to RS485 Converter – for RS Communication Port
18. To understand theory of GSM/GPRS Module – 2.4 GHz

D. Practical Experiments

19. To make Street lights ON and OFF at required time.
20. To make Street lights ON and OFF with Sunset and Sunrise time automatically
21. To sense Door open and close and show the results
22. To measure Energy units used using 3 Phase Energy meter
23. To log all events in Storage Card
24. To safeguard lights for Over Voltage protection by setting Over voltage setting
25. To safeguard lights for Over Current protection by setting Over Current setting

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