ESP8266-WiFi

BT24-Bluetooth

XBEE S8

LORA

Research Design Lab's **ESP32 IoT Trainer Kit** is designed keeping in mind the latest technology on a single board. It is really easy to design, experiment with, and test circuitry without soldering. Students can explore a wide variety of electronic concepts simply by placing components on to the breadboard. It is very useful in electronics laboratories for performing IoT experiments. It is also useful to build and test circuits as well as making projects related to IoT integrating with the cloud platform.

Features:

- Atmega328p- controller and ESP8266 Module.
- Standard I/O interface.
- Programmable with Arduino open source IDE..
- 8 independent LED.
- 1 * 4 independent keys.
- 4* 4 keypad matrix.
- RTC DS1307 with battery connector
- I2C EEPROM Interfaces
- The MAX232 chip RS232 communication.
- 16X2 LCD interface (character display).
- On Board Power supply 3.3V,5V 12V,GND.
- 8 pin DIP switches.
- The board also has inbuilt Xbee footprint.
- 3 ADC potentiometers.
- Pin outs for 3.3V, 12V, 5V, GND.
- High quality PCB FR4 Grade with FPT Certified.

ESP32 Transceiver Features:

- Ultra low power consumption
- Low cost SoC
- Built in antenna switches, power modules and filters
- Operating temperature – 40ºC to +125ºC
- Power supply 2.2V to 3.6V
- Supports UART/I^2C/I^2S/SPI protocol
- 448 KByte ROM, 520 KByte SRAM
- Wi-Fi - 802.11 b/g/n
- Bluetooth - v4.2 BR/EDR and BLE
- Xtensa® Dual-Core 32-bit LX6 microprocessors, up to 600 DMIPS

ESP32 Applications

- Creating IOT Hub
- Low power IoT applications and data loggers
- Used in music players and audio streaming electronics
- Wi-Fi enabled proximity sensing
- Wi-Fi enabled home automation, smart agriculture, on-off control
- Real time wireless industrial plant condition monitoring
- Finds application in health and retail sector

Technical Specification:

Communication	: USB and Serial port
MCU	:ATMEGA328
Crystal Frequency	:16 MHz
Dimension	: W 292 X D 160 X H 67
Power Supply	:110V-260V 50/60Hz
Weight	:2Kg(approximately)
Operating Conditions	:0-45º C,85% RH

Scope of Learning Experiments:

- Creating IOT Hub
- MQTT & Postman
- Monitoring Nodes
- Device to Cloud Connection (D2C)
- Device to Device Connection (D2D)
- Cloud to Device Connection (C2D)
- Creating GUI for Nodes
- Cloud Analytics
- Machine Learning
- LED blinking, shift operation
- 1X4 Keypad interfacing.
- 16X2 LCD interfacing.
- 4X4 Keypad interfacing.
- ADC interfacing.
- 7 Segment interfacing.
- DC Motor and Stepper motor interfacing.
- RTC DS1307 I2C protocol interfacing.
- AT24C04 EEPROM I2C protocol interfacing.
- Bluetooth interfacing.

Package Includes:

- ATMEGA328 Development Board. 1No
- 2X16 LCD. 1No
- ESP32-WiFi 1No
- BT24 Bluetooth Breakout Board 1No
- XBEE USB Adapter with FT232RL 1No
- Mini USB Cable. 1No
- 12V 2A Adapter. 1No
- Jumper wires. 25No's
- Manual CD. 1No
- Wooden Enclosure. 1No