RDL TECHNOLOGIES

RPI 5

AIOT DEVELOPMENT TRAINER KIT

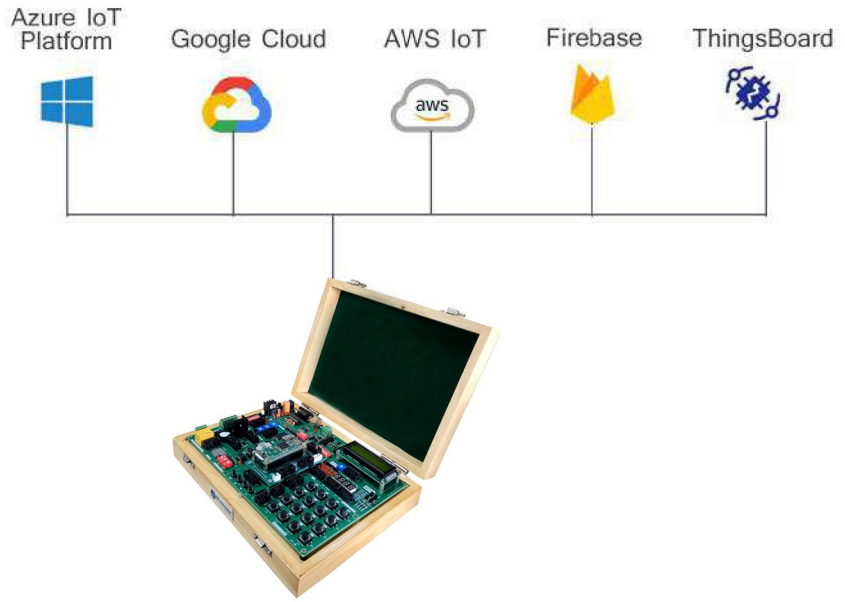
PLUG & CODE | OTA / ON BOARD PROGRAMMING | ON BOARD WIFI & BLUETOOTH | 1 GHz Single Core CPU | RoHS 2011/65/EU

AIoT Development Trainer kit - Raspberry Pi 5 essential development features a plug - and - play design that makes it easy for connections and helps Students, hobbyists, enthusiasts and professionals to focus more on Program/application development. AIoT Development Trainer kit - Raspberry Pi 5 equipped with onboard IO's, communication interfaces & peripherals. It is really easy to design, experiment with, and test circuits without soldering. It's used in many educational institutions and R&D LAB across the world.

Board Features

- Broadcom BCM2712 2.4GHz quad-core 64-bit Arm Cortex-A76 CPU, with cryptography extensions, 512KB per-core L2 caches and a 2MB shared L3 cache
- Video Core VII GPU, supporting OpenGL ES 3.1, Vulkan 1.3
- Dual 4Kp60 HDMI® display output with HDR support
- 4Kp60 HEVC decoder
- LPDDR4X-4267 SDRAM (4GB, 8GB, and 16GB)
- Dual-band 802.11ac Wi-Fi®
- Bluetooth 5.0 / Bluetooth Low Energy (BLE)
- MicroSD card slot, with support for high-speed SDR104 mode
- 2 × USB 3.0 ports, supporting simultaneous 5Gbps operation
- 2 × USB 2.0 ports
- Gigabit Ethernet, with PoE+ support (requires separate PoE+ HAT)
- 2 × 4-lane MIPI camera/display transceivers
- PCIe 2.0 x1 interface for fast peripherals (requires separate M.2 HAT or other adapter)
- 5V/5A DC power via USB-C, with Power Delivery support
- Raspberry Pi standard 40-pin header
- Real-time clock (RTC), powered from external battery
- Power button

Support most of the popular cloud platform



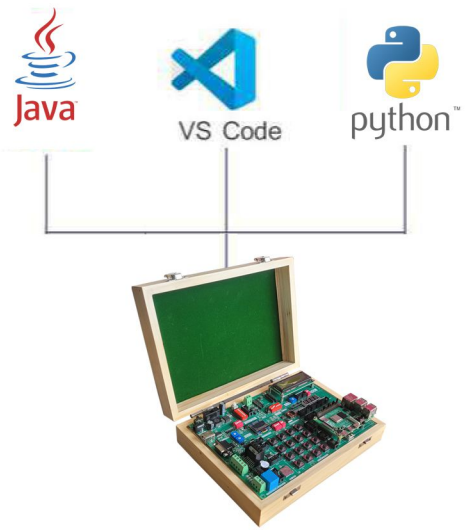
Applications

- Genetic Low - power IoT Sensor Hub.
- Genetic Low - power IoT Dataloggers.
- Cameras for Video Streaming.
- Over-the-top (OTT) devices.
- Speech Recognition.
- Image Recognition.
- Mesh Network.
- Home Automation.
- Smart Building.
- Industrial Automation.
- Smart Agriculture.
- Audio Applications.
- Health Care Applications.
- Wi-Fi Enabled Toys.
- Wearable Electronics.
- Retail & Catering Applications.

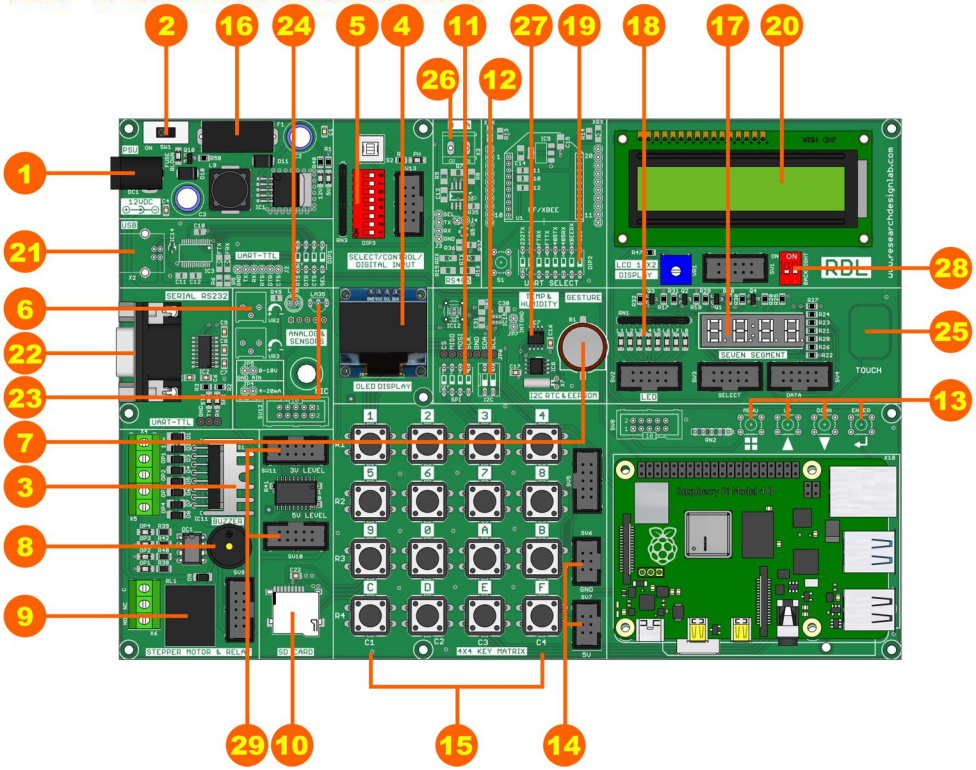
Scope of Learning Experiments

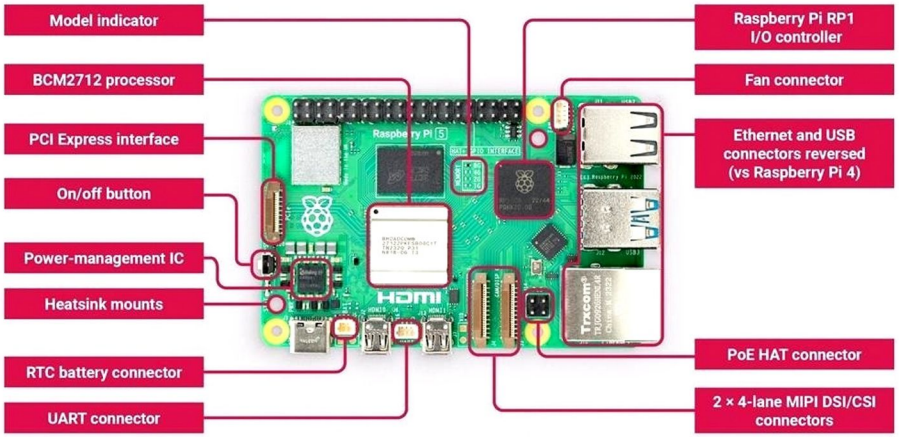
- LED blinking.
- 8 bit LED Left shift, Right shift and counting operation.
- Keypad interrupt interface.
- 6*2 LCD interface.
- Matrix Keypad Interface.
- Traffic light signal interface.
- 8 bit DIP switch interface.
- L298 Driver for DC Motor and Stepper motor interface.
- Communication using UART, I2C & SPI.
- Buzzer, Relay interface.
- RS485, RS232 serial communication.
- RPI5 IO interfacing with different sensor.
- RTC DS1307I2C protocol interface.
- AT24C04 EEPROM I2C protocol interface.
- Wi-Fi Communication.
- Interfacing SD card and handling file system.
- Interfacing sensor with & Data parsing using RESTful & Json protocol.
- FTP Implementation.
- Interfacing sensor with RPI 5 and MQTT protocol implementation.
- Exploring MQTT features subscribe & publish methods.
- MQTT SSL certificate implementation - RPI 5.
- Interfacing RS485 salve using MODBUS protocol.
- Interfacing BLE & Data parsing using RESTful / Json / MQTT protocol.
- Text to speech implementation.
- Device control through speech recognition & alexa integration.
- Appliance control through cloud platform using MQTT protocol.
- Environment data like temp & humidity capturing using cloud platform.
- Modbus RTU communication and accessing data from Industrial PLC.
- Wireless TCP / IP socket connection implementation using node and server architecture.
- Biomedical sensor kit integration and connecting IoT cloud platform for prediction.
- Implementation of RPI 5 WEB server application.

Supported language & development environment



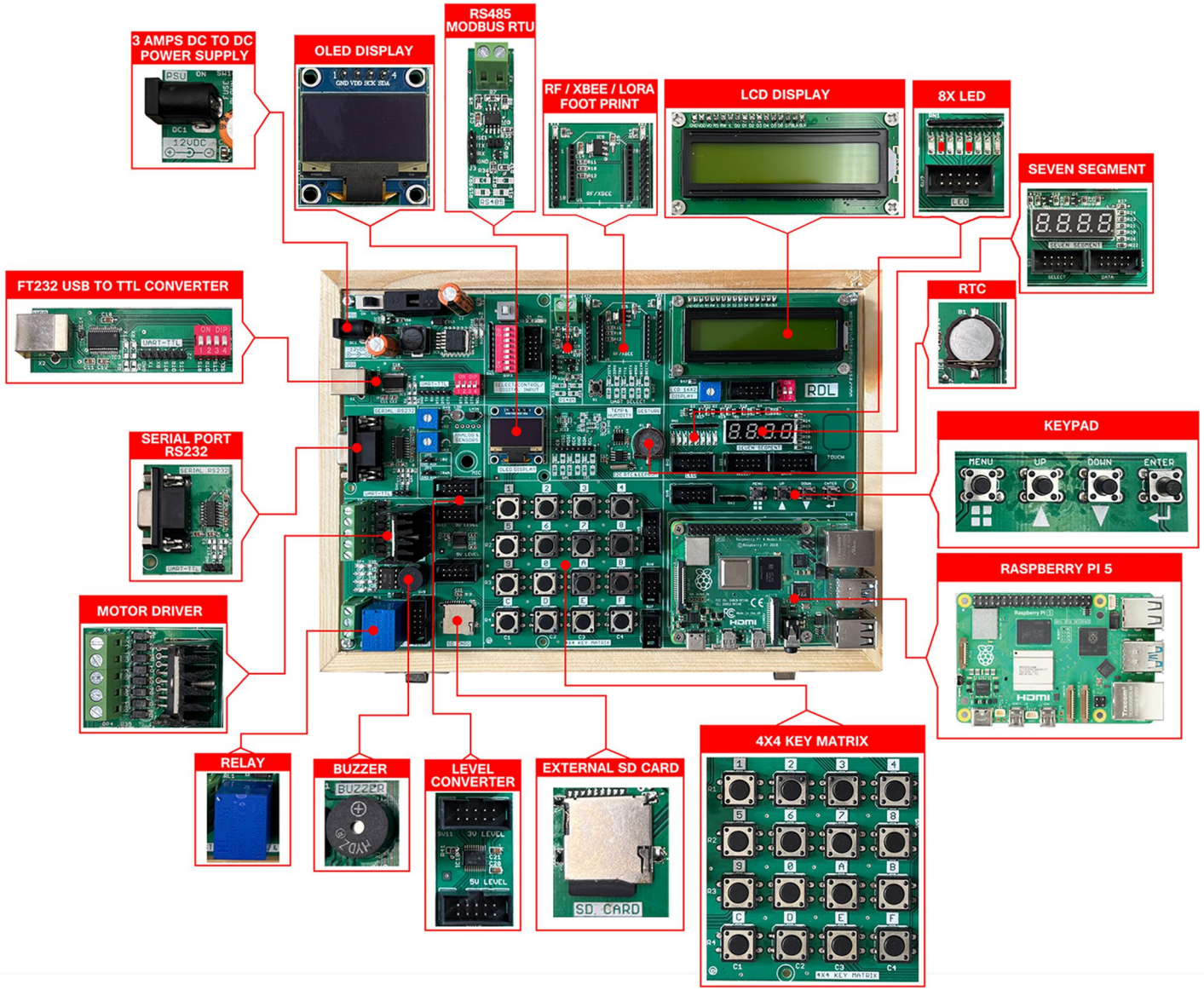
ESP-32 BOARD NARRATION





1. Power Supply
2. Power ON Switch
3. L298 Driver
4. OLED Display
5. Digital Input Switch
6. ADC (Variable Resistor POT)
7. RTC Battery
8. Buzzer
9. Relay
10. SD Card Holder
11. On Off Switch for SPI
12. On Off Switch for I2C
13. 1*4 Keypad Switches
14. RDL Bus FRC 5V & GND Connector
15. 4*4 Keypad Matrix
16. FUSE Holder
17. 7 Segment Display
18. 1*8 LED's
19. Jumper Settings for UART TTL
20. 16*2 LCD Display
21. USB Port
22. DB-9 Serial Female Connector
23. LM35 - Temperature Sensor
24. LDR Sensor
25. Touch
26. RS485
27. EEPROM
28. Backlight On/Off Switch
29. 3.3V to 5V Level Controller

ESP32 - RPI5 BOARD NARRATION



Note:

1. Unless otherwise specified, all parameters in this datasheet were measured at 25°C and 75% humidity.
2. All index testing procedures in this datasheet are based on our company's corporate standards.
3. We offer product customization, OEM and ODM Services; please contact the sales team @ sales@rdltech.in.
4. We Ship Worldwide.
5. Specifications are subject to change without prior notice.
6. For additional information on Product and to buy online @ www.researchdesignlab.com

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