EMBEDDED SYSTEM LABORATORY

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EMBEDDED SYSTEM LABORATORY

Embedded Trainer kits for IoT Applications & IoT Gateway Rs.3,67,417

Embedded Systems Lab

Trainer Kits for IoT Applications

❑The Department of Instrumentation Engineering, MIT Campus has a well-equipped Embedded systems laboratory which is equipped with state of art facilities to understand the concept of the embedded hardware, application software and RTOS.

❑The students are trained to apply the acquired technical skills in embedded programming and use it to develop microcontroller based closed loop control system for a typical process.

❑The students are explored to understand the interfacing of real-world peripherals using respective communication protocols.

❑The embedded work benches are equipped with Integrated Development Environment (IDE) for developing and debugging the target processor specific embedded software.

❑The students are also explored to identify, formulate and apply embedded control strategies for industrial embedded applications.

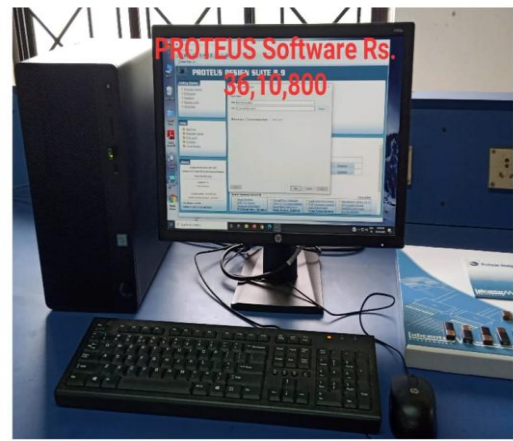# EMBEDDED SYSTEM LABORATORY

Wireless Applications
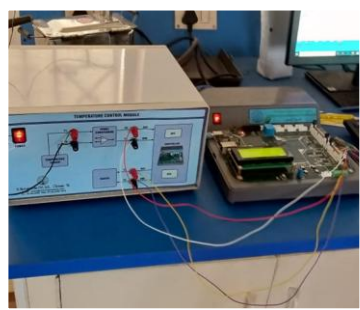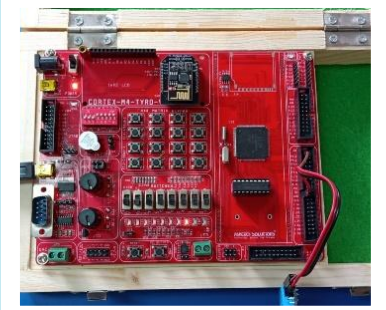

CORTEX M4 for PID CONTROLLER

FPGA Kits

STM32 ARM

PIC18F45K22

IoT Module in ThingSpeak with LM35

GPS

PROTEUS Software Rs. 36,10,800

Embedded Systems Lab

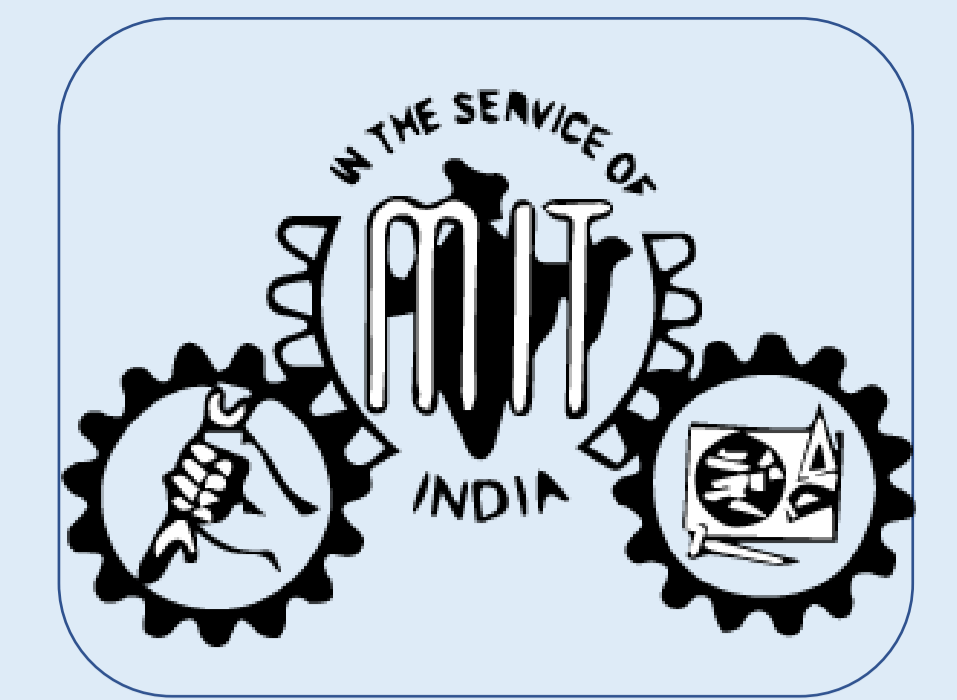**Licensed PROTEUS Software**
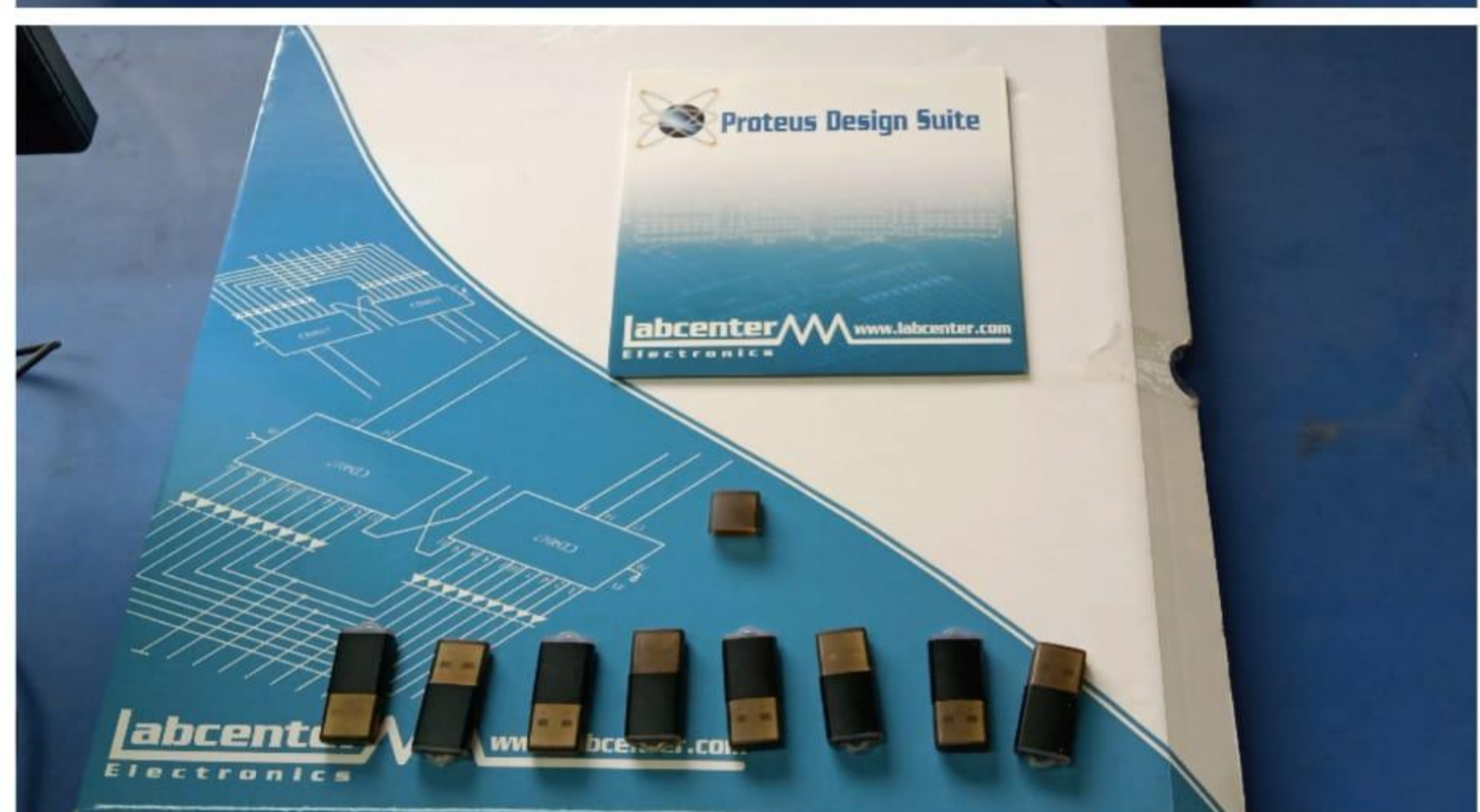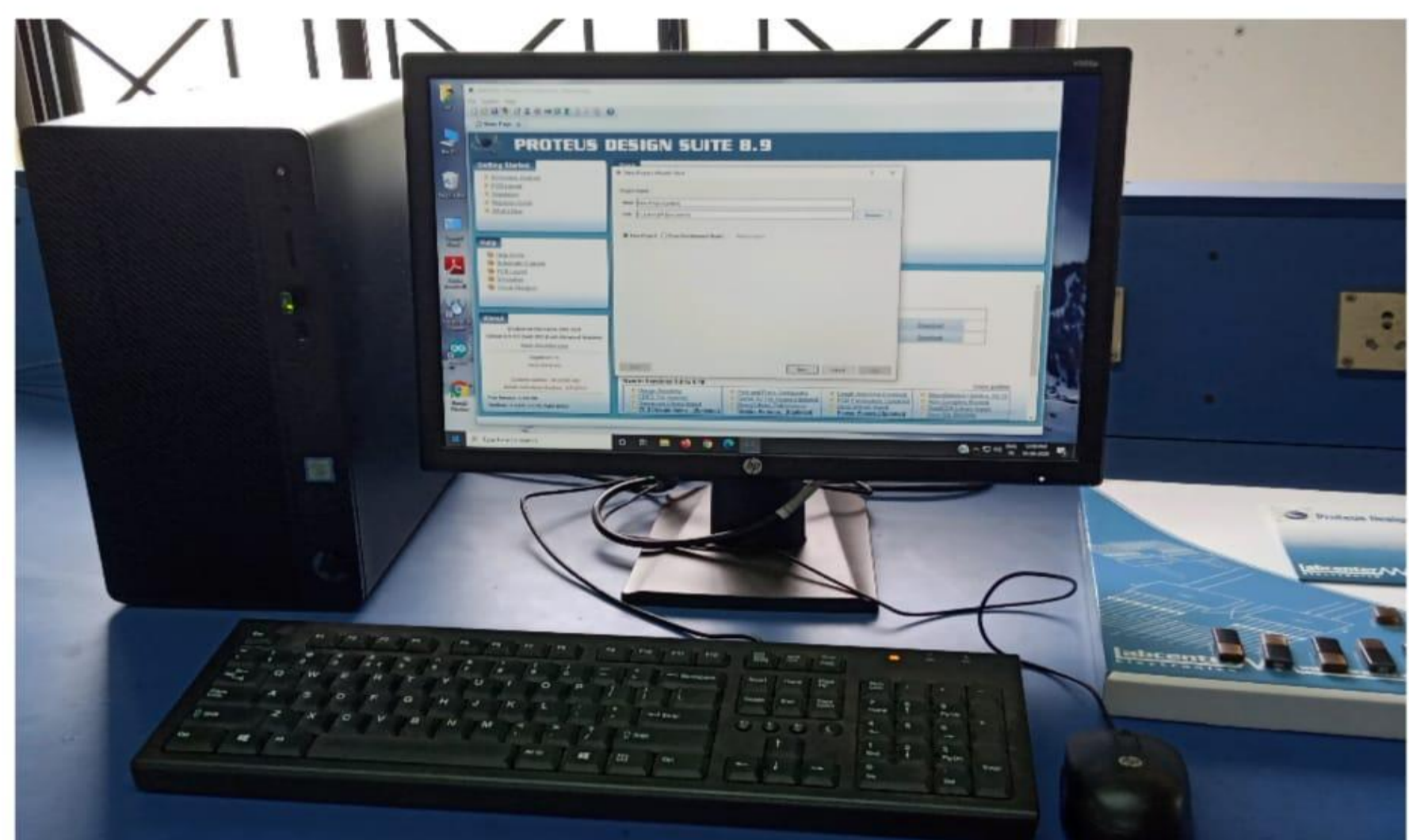
DEPARTMENT OF INSTRUMENTATION ENGINEERING
MIT CAMPUS, ANNA UNIVERSITY
EMBEDDED SYSTEMS LABORATORY
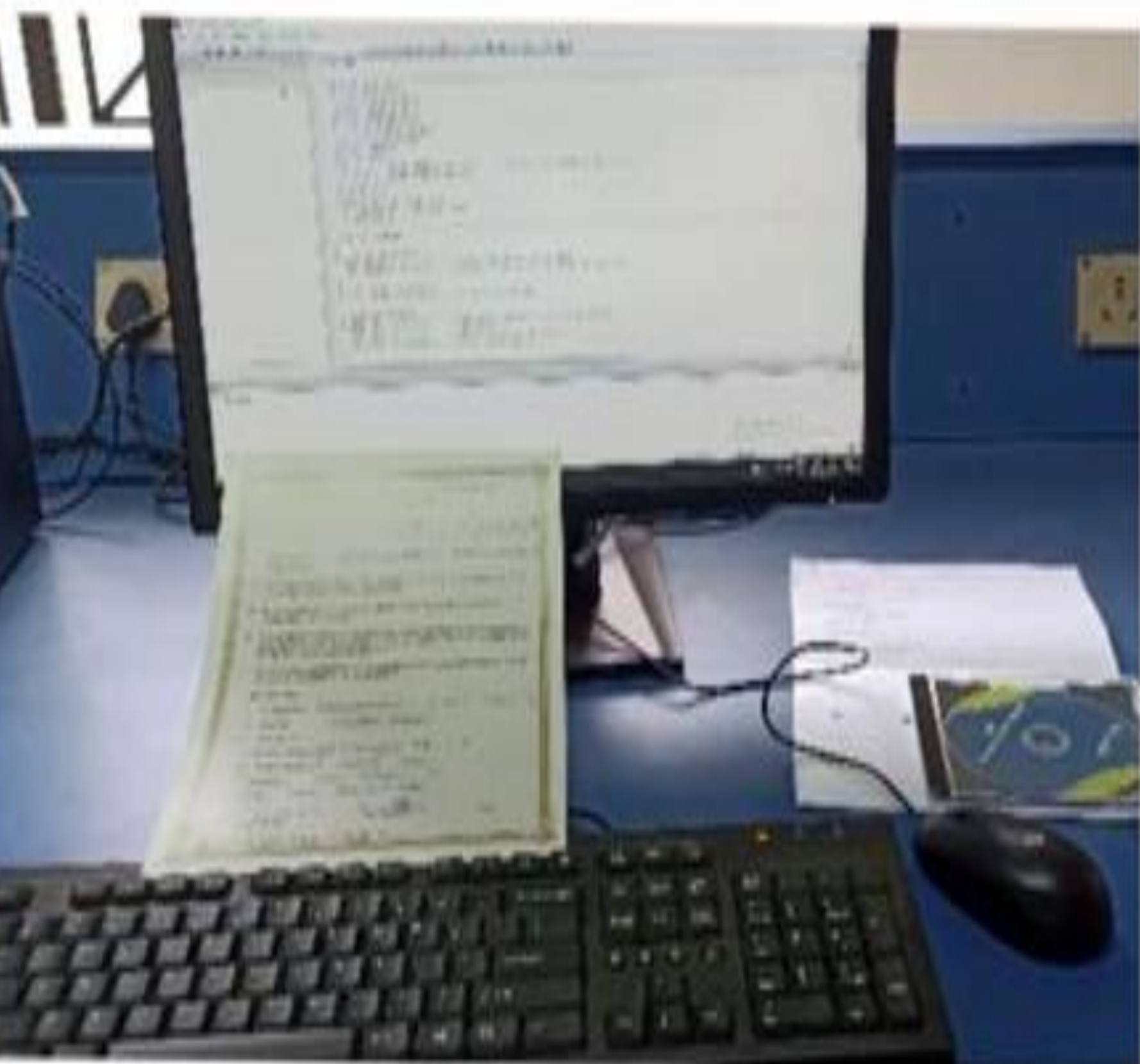### MAJOR VALUE ADDED FACILITIES

PROTEUS SOFTWARE with 10 USERS LICENSE (₹36.1L)

PROTEUS PLATINUM VERSION EMBEDDED DESIGN AND SIMULATION SOFTWARE (VERSION 8.9) WITH THE FOLLOWING COMPONENTS:
- All microcontrollers available in Proteus VSM
- All standard Electronic Components
- TTL – 74 series, CMOS Devices, Memory Devices
- Serial Communication Interface
- Sensors and Measuring Instruments
- Advanced Simulation features
- PCB Level-3 Simulation software
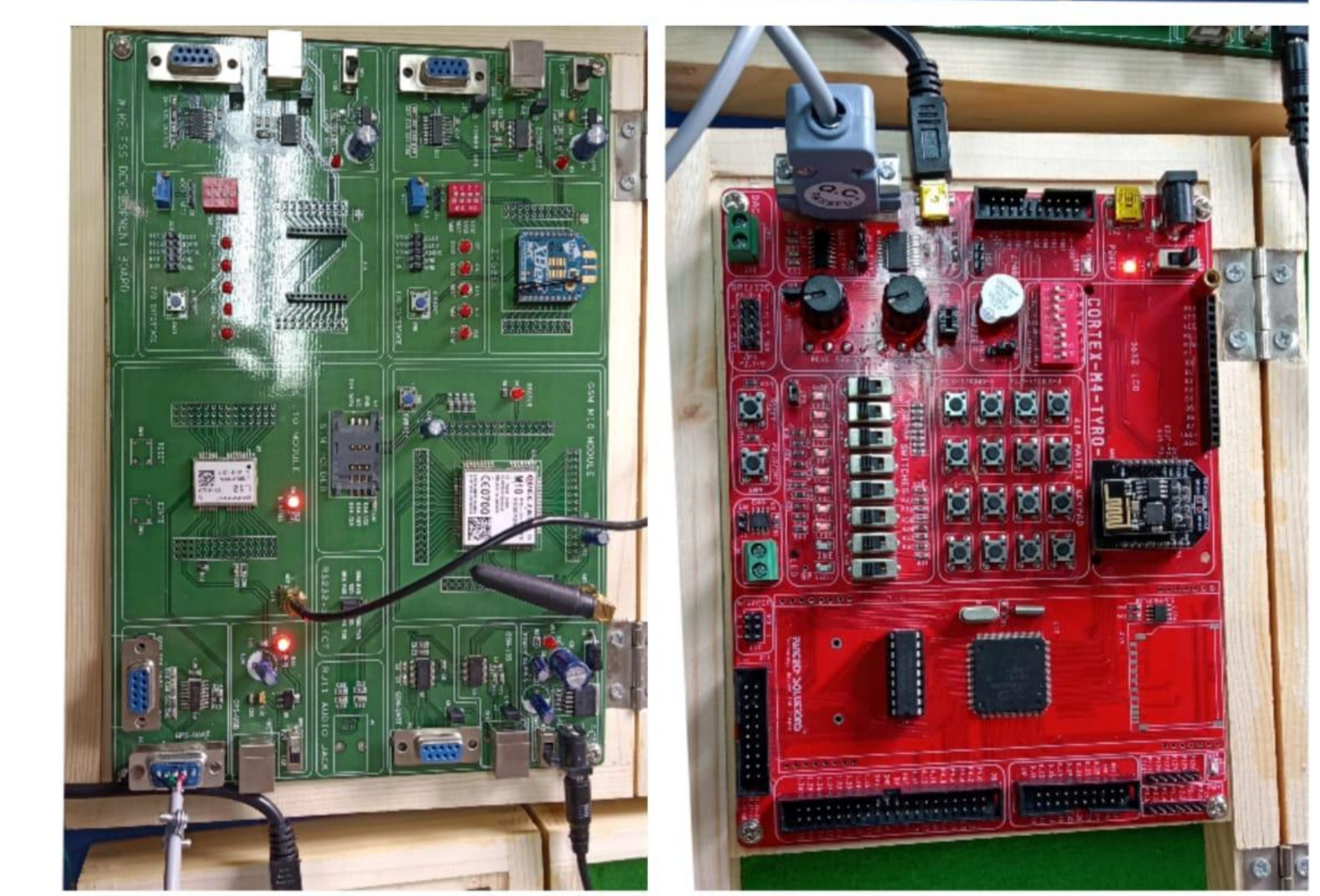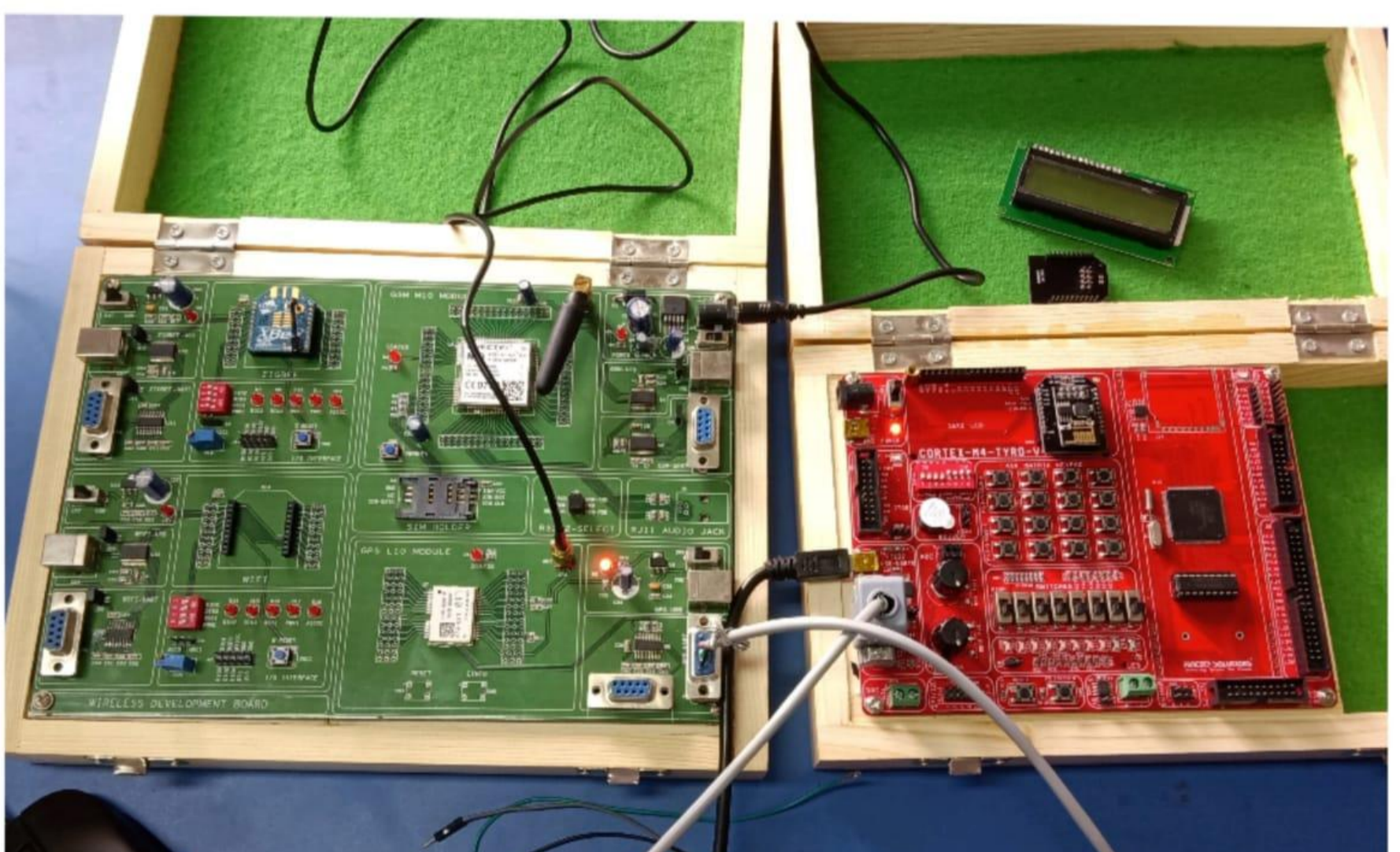- Life time Perpetual User License

IoT GATEWAYS(₹1L)

RASPBERRY PI BASED GATEWAY
- Broadcom BCM2837 Processor
- Third Generation Raspberry Pi with an operating frequency of 1.2GHz,1 GB Internal RAM
- 2.4GHz, 802.11 wireless module
- Bluetooth 4.1 classic, BLE module

BEAGLEBONE BASED GATEWAY
- AM335x processor based Gateway
- ARM cortex A8 with an operating frequency of 1GHz
- 2.4GHz 802.11b/g/n/compliant Wi-Fi module
- Bluetooth 4.1 BLE module

INTEGRATED DEVELOPMENT PACKAGE FOR EMBEDDED APPLICATIONS(5 User License) (₹5.65L)

IAR EMBEDDED WORKBENCH FOR ARM BASED WIRELESS APPLICATIONS
- Cloud support to perform monitoring and control of field devices
- 8400 example projects containing configuration files, code examples and project templates, giving every project a quick start
- One Integrated Development Environment with project management tools and editor
- User-friendly IDE
- 7,000+ supported Arm devices
- Leading compiler technology
- Comprehensive debugger

EMBEDDED TRAINER KITS - PIC & ARM based with Industrial standard compiler (₹1.65L)

PIC PROCESSOR BASED TRAINER KITS
- EasyPIC v7 is all about connectivity
- Four different connectors for each port
- Powerful on-board mikroProg programmer and In-Circuit debugger which can program and debug over 387 microcontrollers
- GLCD 128x64 and LCD 2x16 character display
- Two mikroBUS™ sockets which provides to add new additional functionality to the board with small hardware adjustments

ARM PROCESSOR BASED TRAINER KITS
- Two different connectors for each port, which can connect accessory boards, sensors and custom electronics
- Powerful on-board mikroProg™ programmer and hardware debugger that can program and debug over 180 STM32 devices
- Multimedia peripherals -TFT 320x240 with touch panel, stereo mp3 codec, audio input and output
- MCU STM32F107VCT6 card is included in the package with the board
- Two mikroBUS™ sockets

EMBEDDED TRAINER KITS FOR IoT APPLICATIONS((₹1.65L))

ARM PROCESSOR BASED TRAINER KITS
- ARM cortex M4 based LPC 4088
- ON board sensor
- Internal RTC with battery-backup
- Built in memory
- 2 Nos. analog input and LCD interface
- IoT development board for embedded programming
- Zigbee and Wi-Fi based sensor monitoring through cloud
- Bluetooth and Wi-Fi based senor monitoring through cloud
- Point to Point communication two motes over the radio frequency
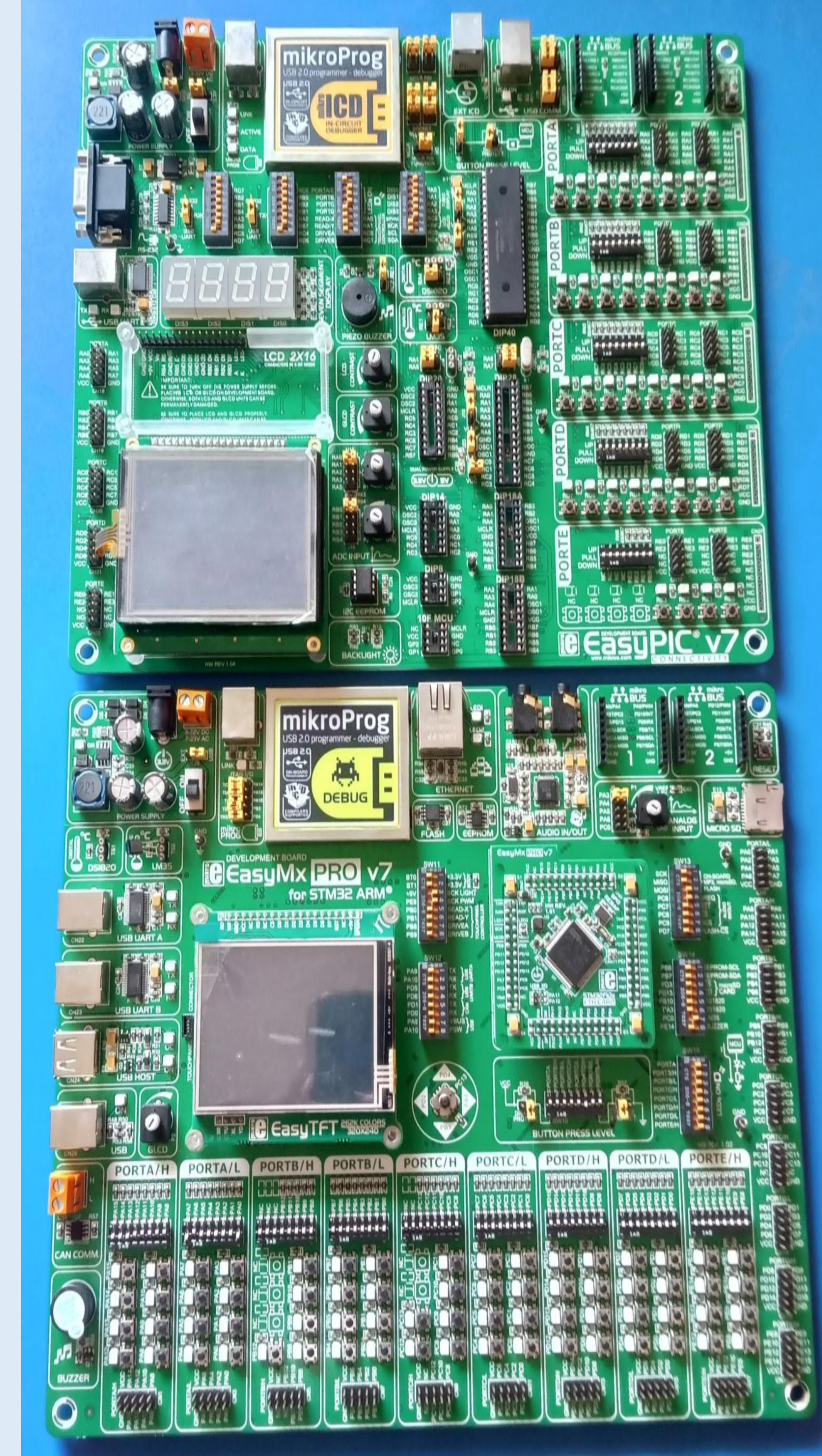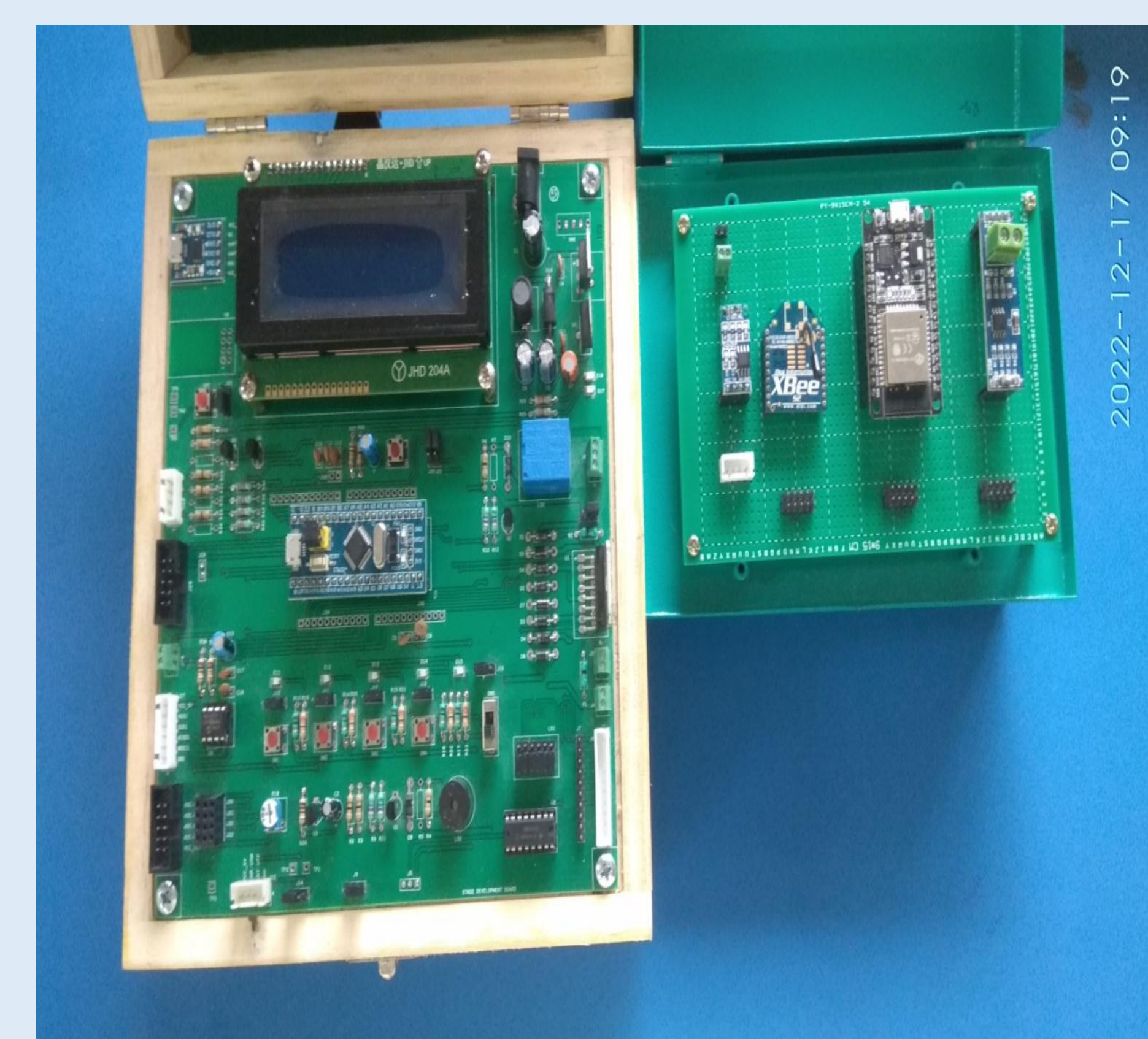- Establishing star network , Tree network, Cluster tree network topology

STM32 Based ARM Development Board(₹1L)

STM32 BASED ARM DEVELOPMENT BOARD
- STM32F103C8T6 Microcontroller with 64KB of on- chip memory
- 72 MHz, 90 DMIPS with 1.25 DMIPS
- ESP32 based WiFi Module
- I^2C based 20x4 Character Alphanumeric LCD Module
- Driver for Stepper motor and DC motor Interface
- On-board Temperature Sensor (LM35)
- USB to UART Module
- RS485 Converter Module
- ZigBee Interface Module