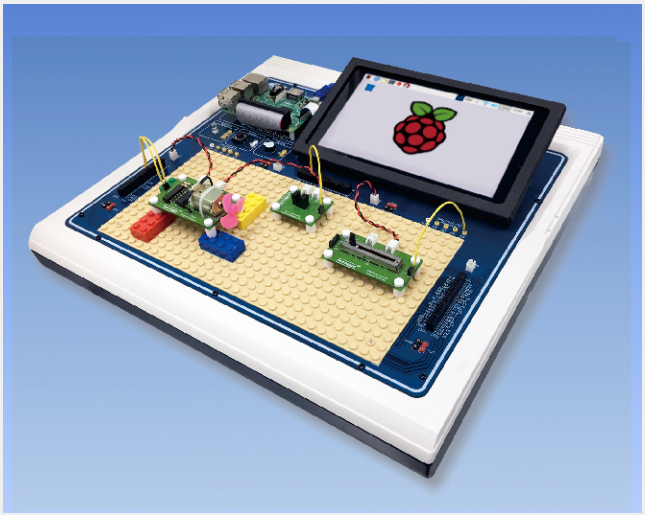
MTS-200
Tutor for Raspberry Pi



The Raspberry Pi is a mini computer allowing people of all ages to explore the world of computers and to learn how to code in programming languages, such as Scratch or Python. Just like a desktop PC, this credit card sized computer is capable of browsing the internet, playing videos, making spreadsheets, processing word document, and playing games.

The MTS-200 Tutor for Raspberry Pi provides an environment for Raspberry Pi to interact with the outside world through different forms of electronics (16 faya-nugget electronic blocks). Students can efficiently learn and create various digital maker projects through simple connections and simple Python codes in the tutorials provided.

Features

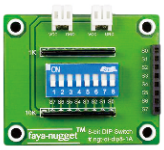
1. The trainer includes various I/O peripherals suitable for learning Raspberry Pi projects.
2. There are step-by-step procedures in the experiment manual for the Python programming language.
3. An independent power supply is provided to maximize the number of peripheral modules.
4. Three sets of I/O ports are extended around the working area for easy signal connection.
5. Two sets of independent DAC/ADC are built in to expand more experimental circuits.
6. A touch screen is built in for direct use and control.

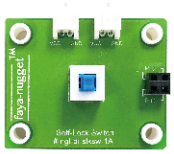
Specifications

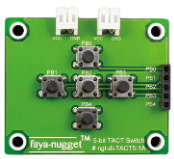
1. Power
   (1) Input : 110V/220V AC, 50Hz/60Hz
   (2) Output : +5V/3A, +3.3V/1A
2. Control board
   (1) Raspberry Pi 4 Model B (4G RAM)
   (2) Memory card : 16G micro SD card
   (3) Power : built-in USB power
   (4) Heat sink, fan and acrylic cover
3. Display
   (1) Size : 7-inch, touch screen
   (2) Resolution : 800 x 480 @60fps, 24-bit color
   (3) Protection : metal frame with protective sticker
4. Prototyping area
   (1) Device : RGB LED, button, buzzer
   (2) ADC/DAC : 2 sets, address 0x48 and 0x49
   NXP PCF8591, 8-bit resolution,
   analog input x 4, analog output x 1
   (3) Power jack : +5V/GND jump wire socket x4
   +5V/GND wafer socket x4
   (4) I/O socket : 40-pin female connector x 3
   (5) Brick plate : 32 x16 brick unit
5. faya-nugget electronic blocks (NGT-603)
   All blocks contain two wafer sockets for power connection, a DuPont pin-holder for signal connection, and four corner holes for perfect fixing on the brick plate.
   (1) Digital input
      a. BCD switch
      b. 8-bit DIP switch
      c. Self-lock switch
      d. 5-bit TACT switch
      e. Toggle switch
   (2) Analog input
      a. Joystick switch
      b. Slide potentiometer
   (3) Environment detection
      a. AD-590 temperature sensor
      b. Hall sensor
      c. Photo interrupter
      d. Proximity sensor
      e. Reed switch
   (4) Output module
      a. Piezoelectric buzzer
      b. Step motor
      c. DC motor
      d. 2-axis servo
   (5) Accessories
      a. Experiment manual x 1
      b. Wire pack x 1
      c. Brick pack x 1
      d. 32 x16 brick plate x 2
      e. Brick post x 75
      f. Brick cap x 75
      g. Power wire x 20
      h. Magnet x 1

▶Digital Input


BCD Switch


8-bit DIP Switch

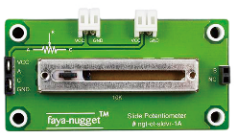

Self-Lock Switch


5-bit TACT Switch

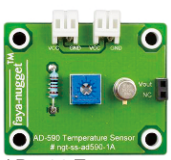

Toggle Switch

▶Analog Input


Joystick Switch


Slide Potentiometer

▶Environment Detection


AD-590 Temperature Sensor


Hall Sensor

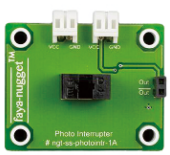
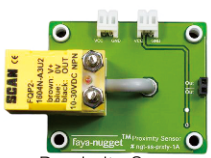
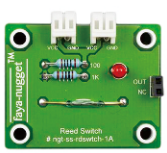
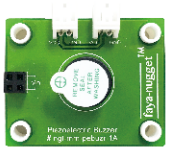


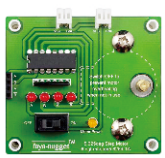
Photo Interrupter

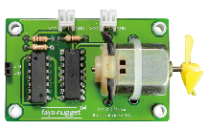

Proximity Sensor

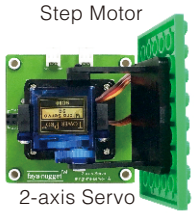

Reed Switch

▶Output Module


Piezoelectric Buzzer


Step Motor


DC Motor


2-axis Servo

● List of Experiments

1. Digital Input Experiment
   (1) Button
   (2) BCD Switch
   (3) 8-bit DIP Switch
   (4) Self-Lock Switch
   (5) 5-bit TACT Switch
   (6) Toggle Switch
2. Analog Input Experiment
   (1) Joystick Switch
   (2) Slide Potentiometer
3. Environment Detection Experiment
   (1) AD-590 Temperature Sensor
   (2) Hall Sensor
   (3) Photo Interrupter
   (4) Proximity Sensor
   (5) Reed Switch
4. Output Module Experiment
   (1) RGB LED
   (2) Buzzer
   (3) Piezoelectric Buzzer
   (4) Step Motor
   (5) DC Motor
   (6) 2-axis Servo

● Accessories

1. Operational manual x 1
2. Power cord x 1
3. Experiment CD x 1

● Optional

1. Raspberry Pi camera-V2 (with acrylic cover for protection & extended Flex PCB Cable)(MTS-23001)
2. Logitech C270 HD webcam (MTS-23002)


Raspberry Pi Camera


Logitech C270 HD Webcam

3. Carry case

Note:

1. A USB keyboard and a mouse are required for operating all experiments.
2. A HDMI monitor is highly suggested for effective training.
3. More faya-nugget electronic blocks are available upon request.