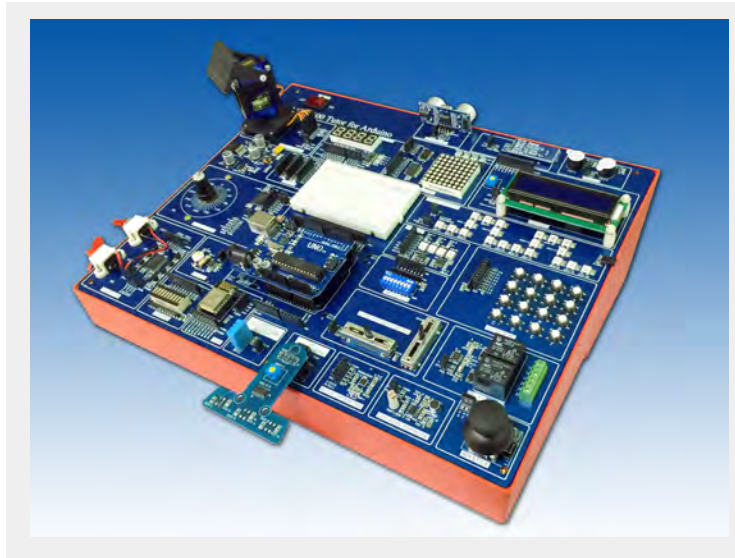




# MTS-100

## Tutor for Arduino



### ● Features

1. The trainer includes various I/O peripherals suitable for learning Arduino project.
2. Independent I/O blocks, allowing users to use Dupont wire to build their own applications.
3. Step by step procedure in experiment manual.
4. Dual power design, users can select either Arduino or External power for I/O devices.
5. Solder less Breadboard allow users to create more circuits and integrate them into the system.

### ● Specifications

#### 1. Power

- (1) Input : AC 110/220V, 50/60Hz
- (2) Output : +5V/1.5A, +3.3V/0.5A

#### 2. Control Board

- (1) Arduino UNO R3
- (2) Core : ATMEGA328P
- (3) Digital IO : 14 (D0~D13)
- (4) Analog IO : 6 (A0~A5)
- (5) PWM Output : 6 (D3、 D5、 D6、 D9、 D10、 D11)
- (6) Support AREF pin
- (7) Support Tx/Rx pin
- (8) Support I2C interface
- (9) Support ISP download
- (10) Programming interface : USB Type-B

#### 3. Input Module

- (1) Digital Input
  - a. 4x4 Key Pad : touch button
  - b. DIP Switch : 8 pin
- (2) Analog Input
  - a. Slide Potentiometer : 20KΩ x 2
  - b. Joystick x 1
  - c. Microphone x 1
- (3) Sensor Input
  - a. CDS Sensor x 1
  - b. Temperature & Humidity Sensor x 1
  - c. Accelerometer : 3-axis
  - d. Ultrasonic x 1
  - e. IR Line Tracer x 1

#### 4. Output Module

- (1) LED Matrix Display : 8x8
- (2) 4-Digit 7-Segment Display
- (3) LED Bar : 10 bit
- (4) RGB LED x 4
- (5) High Power LED : 1W
- (6) Serial RGB LED x 20
- (7) LCD Display : 16x2 (Serial & Parallel )
- (8) Relay : 5V, 2 sets
- (9) DC Motor : 5V, 2 sets
- (10) Step Motor : 12V, 7.5 deg / tick
- (11) Servo Motor x 2
- (12) Buzzer A : Electromagnetic, self-drive
- (13) Buzzer B : Electromagnetic, external-drive

#### 5. Communication Module

- (1) WiFi : ESP8266 x 1
- (2) Bluetooth: HC05 x 1

#### 6. Other Module

- Solderless Breadboard : 81x51mm, 408 tie points



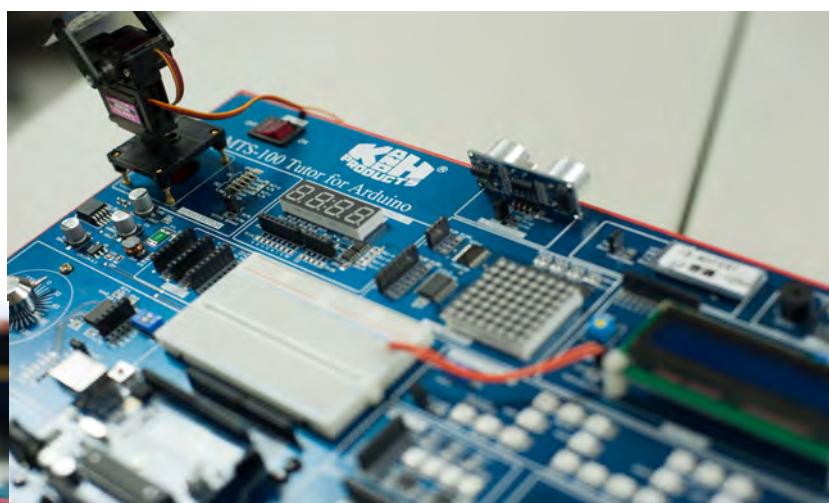
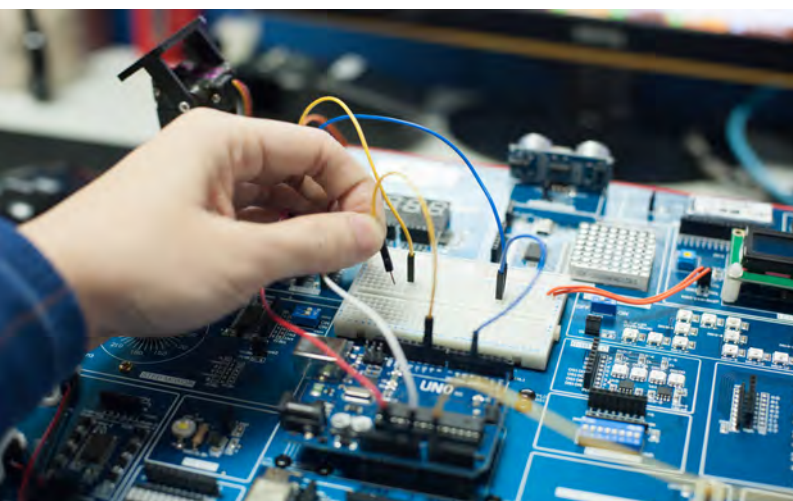
## ● List of Experiments

1. Buzzer and Keypad Control
  - (1) Button Controlled Buzzer
  - (2) Simple Electronic Organ
  - (3) Music Player
2. LED Matrix Control
  - (1) Static Display
  - (2) Dynamic Display
3. 7-Segment Display Control
  - (1) Alternative Display
  - (2) Simple Digital Clock
  - (3) Human-Machine Interface (HMI)
4. Relay Control
  - (1) ON-OFF Control with Two Buttons
  - (2) ON-OFF Control with One Button
5. Voice and Light Control
6. Analog Input and Output
  - (1) Potentiometer Controlled LED Dimmer
  - (2) Joystick Controlled LED Dimmer
7. Serial Monitor
  - (1) LED Brightness Controller 1
  - (2) LED Brightness Controller 2
  - (3) Light Detector
  - (4) Noise Detector
  - (5) Digital Voltmeter
8. Conventional RGB Control
  - (1) Static Display
  - (2) Dynamic Display
9. Serial RGB Control
  - (1) Button Controlled Serial RGB LED
  - (2) Dual Running LED
  - (3) Pressure-Activated Serial RGB LED
  - (4) Voice-Activated Serial RGB LED
10. LCD Display Control
  - (1) 8-Bit Interface LCD Control
  - (2) 4-Bit Interface LCD Control
  - (3) I<sup>2</sup>C Interface LCD Control

11. Humidity/Temperature Measurement
12. Ultrasonic Range Finder
  - (1) Serial Monitor Display
  - (2) LCD Display
13. IR Line Tracer
14. Servo Motor Control
  - (1) Potentiometer Controlled Servos
  - (2) 2-Axis Robot Control
15. 3-Axis MEMS Accelerometer Control
16. DC Motor Control
  - (1) ON-OFF Control
  - (2) Speed and Direction Control
17. Step Motor Control
  - (1) Unipolar Step Motor Drive
  - (2) Bipolar Step Motor Drive
18. Bluetooth Wireless Communications
  - (1) Windows Cross Platform Control
  - (2) Android Cross Platform Control
19. Wi-Fi Wireless Networking  
Data Logger in Cloud

## ● Accessories

1. Experiment manual x1
2. Software / Source Code CD x 1
3. AC Power Cord x 1
4. USB cable (Type-A to Type-B ) x 1
5. Flat cable (5x2 pin) x 1
6. Dupont wire x 40



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