**COMPONENT SPECIFICATIONS**

**Note:** The specifications shown in here are given by the manufacturers.

1. **ARDUINO MEGA 2560**

* Microcontroller: ATmega2560
* Operating Voltage:5V
* Input Voltage (recommended):7-12V
* Input Voltage (limits):6-20V
* Digital I/O Pins:54 (of which 15 provide PWM output)
* Analog Input Pins:16
* DC Current per I/O Pin:40 mA
* DC Current for 3.3V Pin:50 mA
* Flash Memory:256 KB of which 8 KB used by bootloader
* SRAM:8 KB
* EEPROM:4 KB
* Clock Speed:16 MHz

1. **MFRC522 RFID Reader Module**

* MFRC522 chip based board
* Operating frequency: 13.56MHz
* Supply Voltage: 3.3V
* Current: 13-26mA
* Read Range: Approx 3cm with supplied card and fob
* SPI Interface
* Max Data Transfer Rate: 10Mbit / s
* Dimensions: 60mm × 39m

1. **ESP8266 WIFI Module**

* 802.11 b/g/n
* Wi-Fi Direct (P2P), soft-AP
* Integrated TCP/IP protocol stack
* Integrated TR switch, LNA, power amplifier and matching network
* Integrated PLL, regulators, DCXO and power management units
* +19.5dBm output power in 802.11b mode
* Power down leakage current of <10uA
* 1MB Flash Memory
* Integrated low power 32-bit CPU could be used as an application processor
* SDIO 1.1 / 2.0, SPI, UART
* STBC, 1×1 MIMO, 2×1 MIMO
* A-MPDU & A-MSDU aggregation & 0.4ms guard interval
* Wake up and transmit packets in < 2ms
* Standby power consumption of < 1.0mW (DTIM3)

1. **SD Card Reader Module**

* Support mini SD card (less than equal 2G), mini SDHC card (less than equal 32 G) (high-speed card).
* The level conversion circuit board, the level interface can 5V or 3.3V.
* Power Supply 4.5V ~ 5.5V, 3.3V voltage regulator board.
* Communication interface is a standard SPI interface.
* Material: PCB, metal
* Size: 4.1x 2.4cm
* Control Interface: A total of six pins (GND, VCC, MISO, MOSI, SCK, CS), GND to ground, VCC is the power supply, MISO, MOSI, SCK is the SPI bus, CS is the chip select signal pin.
* 3.3V regulator circuit: LDO regulator output 3.3 V level converter chip, mini SD card supply.

1. **I2C 16x2 LCD**

* LCD display module with blue backlight.
* Wide viewing angle and high contrast.
* Built-in industry standard HD44780 equivalent LCD controller.
* LCM type: Characters
* Can display 2-lines X 16-characters.
* Voltage: 5V DC.
* Module dimension: 80mm x 35mm x 11mm.
* Viewing area size: 64.5mm x 16mm
* 1602 I2C interface 4-wire 1602 screen
* IO port of control board is only 20, so IO ports is not enough for many sensor, SD card, relay modules.
* The original 1602 screen need 7 IO ports to drive up, and this module can save 5 IO ports

1. **RFID Bracelet**

* 13.56Mhz UID Changeable 1K S50 NFC Bracelet RFID Wristband Chinese Magic Card Back Door Rewritable S50 Card
* Frequency: 13.56 MHz
* Protocol: ISO14443A
* Capacity: 1k bytes EEPROM memory
* Rewrite Times: 100,000 times
* Modulation: ASK Manchester coding
* Read Distance: 0 ~ 10 cm (depends on the Reader)
* Material: Silicone
* Color: black,blue,red,green
* Initial Key: FFFFFFFFFFFF (12F)