

HARDWARE SELECTION

#	Component	Component feature	Comments
1	Atmega 328P	<ul style="list-style-type: none"> • 32K bytes of in-system self-programmable flash program memory • 1Kbytes EEPROM • 2Kbytes internal SRAM • Optional boot code section with independent lock bits • Two 8-bit Timer/Counters with separate prescaler and compare mode • One 16-bit Timer/Counter with separate prescaler, compare mode, and capture mode • Interrupt and wake-up on pin change • 23 programmable I/O lines • Operating voltage: 2.7V to 5.5V • Speed grade: 0 to 8MHz at 2.7 to 5.5V; 0 to 16MHz at 4.5 to 5.5V 	
2	16X2 LCD with HITACHI HD44780 MPU	<ul style="list-style-type: none"> • Power Supply: 5V • Interface: GPIO 	
3	PCF 8574LM	<ul style="list-style-type: none"> • Power Supply: 5V • Interface: I2C 	
4	Real Time Clock (DS1307)	<ul style="list-style-type: none"> • Power Supply: 5V • Interface: I2C • Data: Day, Month, year, second, minute, hour, week day. • Backup Battery: CR2032 • Output Frequency: 1Hz • Crystal Frequency: 32.768kHz 	
5	NodeMCU ESP8266 Module	<ul style="list-style-type: none"> • Power Supply: 3.3 V • Interface: UART/I2C • SPI Flash: Default 32Mbit • UART Baudrate: Support 300 ~ 4608000bps, Default 115200bps • Wifi: 802.11 b/g/n support (2.4 GHz), up to 72.2 Mbps 	
6	LM 7805 with heatsink	<ul style="list-style-type: none"> • Input voltage: 5 to 18 V • Output voltages: 5V • Thermal overload protection • Short circuit protection • Output transition SOA protection • Output noise voltage: 10 μV/Vo • Output resistance 17mΩ 	

7	47uF electrolytic capacitor	<ul style="list-style-type: none"> • Easy to use in the circuit 	
8	100nF ceramic capacitor (code 104)	<ul style="list-style-type: none"> • Easy to apply into the circuit 	
9	10uH inductor	<ul style="list-style-type: none"> • Can stabilise the voltage 	
10	10kOhm Resister	<ul style="list-style-type: none"> • 	
11	2x5 IDC cable	<ul style="list-style-type: none"> • Multi-stranded copper core wire with high electrical conductivity 	
12	Button	<ul style="list-style-type: none"> • Easy to connect and use 	
13	DC port	<ul style="list-style-type: none"> • 	
14	Rail (Female/Male)	<ul style="list-style-type: none"> • 	