

SG Digital Wonderland 2020 Automate Your Home With the Internet of Things (IoT)

Parts List

I've provided an Aliexpress link, but all of these are easily found on Amazon, Aliexpress, Lazada, etc.

- ESP8266
 - <https://www.aliexpress.com/item/4000160133215.html>
 - There are many different versions of this. We recommend the ones described as “NodeMCU”.
- LED
 - <https://www.aliexpress.com/item/32867396026.html>
 - This is for a box of 200 pcs (assorted colors). It's cheap enough that it's not worth trying to buy them individually.
 - Note that only the white and blue LED may be connected directly to the ESP8266. The other colors will require a resistor. We didn't cover the use of a resistor to save time, but you can find a lot of online information on how to add a resistor to an LED.
- Breadboard
 - <https://www.aliexpress.com/item/32906107146.html>
 - This isn't strictly necessary, but it's convenient for experimenting with electronics.
- Jumper wires
 - <https://www.aliexpress.com/item/32891879068.html>
 - These comes in 3 types; M-M, M-F, F-F. Which type to buy will depend on what you're wiring, but it's cheap enough that it's usually best to just buy all three types.
 - The length and number of pins are unimportant.
 - The wires can be easily split up into smaller bundles or individual strands. (if you buy a 40pins, you can split it into 40 individual wires)
- Soil moisture sensor
 - <https://www.aliexpress.com/item/32892951369.html>
 - These are used to detect soil moisture level. Don't need this if you are not doing a plant monitoring / watering project.
- Mini water pump
 - <https://www.aliexpress.com/item/32897726932.html>
 - Only needed if you're doing a plant watering project.
 - These work much better with a transistor. Please see the 2019 SG Digital Wonderland slides for details.
- Push button switch
 - <https://www.aliexpress.com/item/1005001293644261.html>
 - Pack of 20 pcs.
 - These must be used together with a resistor.
- Resistor
 - <https://www.aliexpress.com/item/4000695402017.html>
 - Pack of 100 pcs. Recommend to get the 1000 ohms (1k) resistors.
 - The 1k resistor will work for both the push button switch as well as the red, yellow, green LEDs (blue and white don't require resistors).
- Door lock
 - These costs a fair bit more than the other components and the type to get will depend on your door.
 - The installation can be difficult, require tools, and may damage your door if done poorly. We suggest you do not try this at home.