Suggested Part	Alternatives	Quantity (Total)
Arduino Uno R3	Arduino Nano / Mega	6
ESP32 DevKitC	ESP32-S2, ESP32-C3	4
ESP8266 NodeMCU	Wemos D1 mini	2
DHT22 (Temp + Humidity)	DHT11 / SHT31	2
Capacitive Soil Moisture Probe	Resistive probe	2
Ultrasonic HC-SR04	JSN-SR04T waterproof	2
Fingerprint Sensor R305	AS608	1
RFID MFRC522 + tags	PN532, RDM6300	1 module + 20 tags
Current Sensor ACS712	INA219 (I²C, accurate)	2
Relay Module 4-channel	2-channel, 8-channel, SSR	8
Solenoid Door Lock (12V)	6V variant	1
Mini Water Pump (5–6V)	Submersible type	2
16×2 I²C LCD	20×4 LCD	3
0.96" I²C OLED SSD1306	1.3" OLED	3
Piezo discs 27mm	Piezo stacks	12
Bridge Rectifier (1A)	4×1N4007	6
Supercapacitors 5.5V 1F–10F	Li-Ion cell + TP4056	6
LM2596 Buck Converter	AMS1117 (3.3V/5V)	6
TP4056 LiPo charger	MCP73831	4
Breadboards (full-size)	Half-size	8
Jumper Wires (M/M, M/F, F/F)	Ribbon cables	200
Logic Level Shifter (I²C)	TXS0108E	4
USB cables (Micro/Type-C)	-	15

Notes

For fingerprint lock, RFID, IR lights, ultrasonic, plant watering.
For Wi-Fi/cloud IoT projects (energy meter, room monitor, smart home).
For simpler Wi-Fi IoT demos (LED control, web server).
For room environment monitor, spare.
For automated watering.
For water-level demo.
For biometric door lock.
For attendance system.
For cloud-based energy meter.
For appliance control, pumps, solenoids.
For door lock system.
For auto plant watering.
For lock, water level, plant watering.
For piezo project + portable IoT demos.
For piezoelectric + wearable demo.
For piezo AC → DC conversion.
Storage for piezo/solar energy.
Step-down 12V to 5V/3.3V.
For LiPo rechargeable demos.
For all demos.
For all prototyping.
For ESP32 ↔ 5V sensor communication.
For powering boards.