

Component	Type	Qty	Cost	DigiKey Part ID	Manufacturer Part Number (MPN)	Package
Current Sense R	0.1Ω, 1W	2	\$0.25	0.1W-1-ND	WSLP27261L100FEA	2512 (Metric)
LM358 Op-Amp	Dual Op-amp	1	\$0.50	LM358DRCT-ND	LM358DR	SOIC-8
Voltage Divider F	10kΩ, 0.2W	1	\$0.02	RMCF0805JT10K0C1	RMCF0805JT10K0	0805
Voltage Divider F	3.3kΩ, 0.2W	1	\$0.02	RMCF0805JT3K30C1	RMCF0805JT3K30	0805
ESP32-C3-MINI	Wi-Fi/BLE	1	\$3.00	1568-ESP32-C3-MINI	ESP32-C3-MINI-1	Module
Passive Buzzer	12mm, 5V	1	\$0.50	668-1486-ND	CMT-1205-42-SMT	12mm SMD
High-Power LED	1W White	1	\$0.30	160-1857-ND	LTW-1W100	3535
Raspberry Pi Pic	Microcontroller	1	\$4.00	1661-RP2040-ND	RP2040	QFN-56
Digital Pressure S	I2C/SPI	1	\$5.00	2230-SEN-19038-ND	BMP388	LGA-12
Relay Module	5V SPDT	1	\$1.50	255-2285-ND	T9AS5V12	Module

**Notes**

1W power rating,  $\pm 1\%$  tolerance

Amplifies sense resistor voltage

1% tolerance for battery monitoring

Paired with 10k $\Omega$  for ADC input

Handles Wi-Fi/UART time sync, PV

Driven by PWM for ramp-up alarm

Light ramp controlled via PWM

Optional backup MCU for GPIO/PV

Monitors weight/pressure (I2C interface)

Controls coffee maker (GPIO-triggered)