Sensor Specification Table

Sensor	Type	Range	Output Type	Voltage	Use
DHT22	Temperature and humidity sensors	0-100% humidity, 2-5% accuracy -40°C - 80°C	Digital 1 wire signal 16 bit humidity 16 bit temperature 8 bit checksum	3V-5V power supply	Via single digital pin measure temperature & humidity
MQ135	air quality gas sensor	-10°C → 45°C <95% Relative Humidity 21% Oxygen Concentration 10 ~ 1000ppm NH3 Also CO2	analog voltage signal → concentration of gas it detects ADC → gas concentration	5V ± 0.1V Circuit voltage and heating voltage	Detect ammonia NOx Alcohol Benzene Smoke CO2
LDR	CdS (Cadmium Sulfide) Photoresistor	-30°C → 70°C 90 mW max power 150V max 5 MOhm resistivity 5-10 kΩ light 0.2 MΩ dark GL206	+ Voltage Divider Output → analog voltage varys with light intensity	4.5V bright light dark 0.1V medium 2.5V analog read(C)	Measure Light Sensitivity
KY-038	Sound Sensor Module	30 dB to 100+ dB sensitivity Potentiometer adjustable 0 → VCC analog range	analog output: variable compared to threshold digital → high/low based on threshold	3.3-5V DC operating	Detect Sound levels to environment compared to preset threshold

Initial / Extended Parts List

Component	Quantity	Purpose
KY-038	1	sound sensor
LDR	1	voltage divider light detection
Arduino uno	1	microcontroller
DHT22	1	Temperature / humidity
MQ135	1	gas sensor
Breadboard	1	Prototypes
LM358 Opamp	1	Sound amplification
IRF540 Nchannel mosfet	1	Fan switching
Flyback Diode	2	Protection against inductive kickback
Buzzer	1	alert system
LED (all colors)	4	visual alerts
OLED	1	Display Sensor Data
DC Fan	1	cooling / environmental airflow
Buck (LM2596)	1	12V - 5V Power Regulation
TVS diode	1	Surge/Spike protection
Power supply	1	external pwr source
USB Cable	1	arduino programming / logging uploads
Jumper wires	40+	connections signal/power
Resistors	20+	pullup voltage divider, current limiting
Capacitors	10	decoupling, filtering