

Prototype Initial Manufacturing Costs

Sensor or Device	Price per Unit	Count	Total
Arduino Nano	\$5.33	2	\$10.66
Sparkfun ADXL335 Accelerometer	\$17.99	1	\$17.99
16x2 Serial LCD with I2C Driver	\$8.99	1	\$8.99
433MHz Radio Transmitter and Receiver Pair	\$2.40	2	\$4.80
Piezo Speaker	\$0.20	2	\$0.40
Thermistor	\$0.17	1	\$0.17
5mm 5V LEDs	\$0.10	4	\$0.40
300mA 3W LED with heatsink	\$1.74	3	\$5.22
SPST Relay (T77S1D3-05)	\$3.33	1	\$3.33
220Ω Resistor	\$0.06	1	\$0.06
4.7kΩ Resistor	\$0.06	1	\$0.06
10kΩ Resistor	\$0.06	2	\$0.12
Wiring Kit	\$9.99	1	\$9.99
COMPLETE TOTAL:			\$62.19

Optimized Unit Manufacturing Costs

Sensor or Device	Price per Unit	Count	Total
Geekcreit ATmega328P Nano V3	\$3.998	2	\$8.00
Geekcreit MPU-6050 3 Axis Gyro/Accelerometer	\$2.997	1	\$3.00
Geekcreit 16x2 LCD with I2C Driver	\$5.990	1	\$5.99
Oiyagi 433MHz RF Transmitter & Receiver Pair	\$2.400	2	\$4.80
Xiaoyztan Piezo Speaker	\$0.200	2	\$0.40
Hangzhou Wfyear Metal Oxide Varistor Thermistor	\$0.013	1	\$0.01
5mm (ANY COLOR) LEDs	\$0.010	4	\$0.04
Exceed Electronics 3W White LED	\$0.340	3	\$1.02
Anhui Shirui PCB Type DC Power Relay	\$2.500	1	\$2.50
EDGELEC 220Ω Resistor	\$0.060	1	\$0.06
EDGELEC 4.7kΩ Resistor	\$0.060	1	\$0.06
EDGELEC 10kΩ Resistor	\$0.060	2	\$0.12
Custom Printed PCB	\$1.660	1	\$1.66
COMPLETE TOTAL:			\$27.66

Rates used in Calculations	
What	Price per Hour
Hourly Wage	\$12.00
Louisiana kWh	\$0.08

Proto Direct Labor & Energy Costs		
Task	Hours Spent	Cost
Planning	2	\$24.00
Programming	6	\$72.00
SolidWorks Design	4	\$48.00
Wiring	3	\$36.00
Testing	4	\$48.00
Fine Tuning	1	\$12.00
3D Printing	21	\$1.76
TOTAL:		\$241.76

Optimized Direct Labor & Energy Costs		
Task	Hours Spent	Cost
Planning	0.01	\$0.12
Programming	0.05	\$0.60
SolidWorks Design	1	\$12.00
Wiring	0.35	\$4.20
Testing	0.5	\$6.00
Fine Tuning	0.02	\$0.24
3D Printing	21	\$1.76
TOTAL:		\$24.92

Prototype Sale Price Breakdown				
Parts and Devices	Direct Labor & Energy	Profit Margin	Manufacture % of Sale Price	Extrapolated Sale Price
\$62.19	\$241.76	15%	40%	\$582.57

Optimized Sale Price Breakdown				
Parts and Devices	Direct Labor & Energy	Profit Margin	Manufacture % of Sale Price	Extrapolated Sale Price
\$27.66	\$24.92	15%	40%	\$100.77