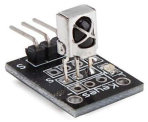
Wall · E Components

Hardware Components | June 2024 | io1

Electronics & Control

No	QTY	Component	Description	Function in Project	Why This Component?	Photo
1	x1	ESP-WROOM-32 Dev Board 30 pins	Dual-core microcontroller with Wi-Fi & Bluetooth by Espressif. Acts as the central processing unit for all logic, communication, and control tasks.	Acts as the brain of the robot, managing sensor input, motor control, communication, and logic.	High performance, wireless support, widely documented and **community backed**.	
2	x1	ESP32 Shield (30-pin)	Add-on board that provides pin breakouts and easier connections for ESP32 modules and servos	Simplifies wiring and integration of power and control systems.	Provides modularity and mechanical stability.	
3	x1	IR Receiver Module	Infrared receiver module (38kHz) capable of detecting signals from standard IR remotes.	Detects and decodes signals to control turret rotation and taser activation.	Allows safe control of higher loads using GPIO signals.	
		IR Controller	Remote control with numeric and directional keys, transmits modulated IR signals.	Used by the user to control turret direction and activation remotely.	Lightweight and reliable, also the same used in the official verison	

Power System

No	QTY	Component	Description	Function in Project	Why This Component?	Photo
7	x1	AA Battery Holder (4xAA)	Plastic battery holder for 4 AA batteries in series, total output ~6V.	Provides primary power supply for servos and ESP32.	Compact and simple; matches the voltage range of used modules.	
8	x4	AA 1.5V Batteries	Alkaline 1.5V batteries, standard size AA.	Supplies energy to the turret's control and actuation system.	Accessible and easy to replace.	
9	x1	Barrel Jack Terminal Adapter	Screw terminal adapter for barrel jack connections.	Enables easy connection of battery holder to shield power input.	Allows secure and removable power connection.	

Mechanical Actuation & Movement

No	QTY	Component	Description	Function in Project	Why This Component?	Photo
10	x2	SG90 Micro Servo (Continuous Rotation)	360° servo motor controlled by PWM, capable of full rotation with speed control.	Used to rotate turret base and/or perform sweeping motion.	Simple to control and lightweight.	
11	x1	SG90 Micro Servo (Standard 180°)	Analog servo motor with range of 0° to 180°, position controlled by PWM.	Controls vertical aiming of turret or other mechanical part.	Simple to control and lightweight.	
12		Insertion Nut & Screw Kit	Set of brass M3 inserts and machine screws.	Provides firm connections for 3D-printed structures.	Reinforces structure, improves modularity and assembly.	
13		Neodymium Magnet (15x2mm)	permanent magnets with strong holding force.	Used for mechanical locking, alignment, and modular snap-fit features.	Compact size, strong hold, and reusability.