Project Idea: Object Laser Follower

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Projects Description: -

A laser pointer mounted on top of 2 ultrasonic sensor, the laser pointer follows the object in front of it which moves horizontally (Left and Right). Therefore, if any object is moving in front of this robot the laser will trace it.

Components used: -

Components	Description	Usage	How connect
The Arduino Uno	The Arduino Uno is a microcontroller board based on the ATmega328 (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button.	Arduino consists of both a physical programmable circuit board (often referred to as a microcontroller) and a piece of software, or IDE (Integrated Development Environment) that runs on your computer, used to write and upload computer code to the physical board.	In this project I connect the Arduino to breadboard as the following: - -GND from power section in Arduino to breadboard. -5V to breadboard. -Port (9) to servo. -Port (10) to echo in ultrasonic sensor (A). -Port (11) to trig in ultrasonic sensor (A). -Port (12) to echo in ultrasonic sensor (B). -Port (13) to trig in ultrasonic sensor (B).
Ultrasonic sensor (A). hc-sr04	Ultrasonic sensors “are based on the measurement of the properties of acoustic waves with frequencies above the human audible range,” often at roughly 40 kHz [1)]. They typically operate by generating a high-frequency pulse of sound, and then	In this project I use Ultrasonic sensor to determine the Movements of the objects that I need the laser to follow it. (Right).	ultrasonic sensor Contain (GND,Echo,Trig,Vcc) I connect GND to port GND on Arduino. Vcc to V5 on Arduino. Trig to Port (11). Echo to Port (10).

	receiving and evaluating the properties of the echo pulse.		
Ultrasonic sensor (B). hc-sr04	___//////////////////___	In this project I use Ultrasonic sensor to determine the Movements of the objects that I need the laser to follow it. (Left).	ultrasonic sensor Contain (GND,Echo,Trig,Vcc) I connect GND to port GND on Arduino. Vcc to V5 on Arduino. Trig to Port (13). Echo to Port (12).
Servo Motor SG90.	A servomotor is a rotary actuator or linear actuator that allows for precise control of angular or linear position, velocity and acceleration. It consists of a suitable motor coupled to a sensor for position feedback. ... Servomotors are used in applications such as robotics, CNC machinery or automated manufacturing.	Adjust movements of servo motor by the code depend on the Frequencies captured by the sensor.(Angles)	Servo Motor Contain 3 wires (Black,Red,Yellow) I connect as follow:- -Black to GND on Arduino. -Red to V5 on Arduino on power section. -Yellow to Port (9) on Arduino.
Laser OKY3301	Normal Laser with red light.	To follow the object	Laser Contain 2 (GND , -) - -To V5 on Arduino. - GND to GND on breadboard.
Jumper wires	Normal wires	To connect components to each other.	//////////////////////////