Arduino-Based Radar System

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Project Description:

Our project idea is to build a small radar system using an Arduino UNO, an URM37 ultrasonic sensor, and a servo motor. The main goal is to create a simple setup that can scan its surroundings and detect objects, just like a real radar does. The ultrasonic sensor will send out sound waves, and by measuring the time it takes for the echo to return, the Arduino can calculate how far away an object is. The servo motor will rotate the sensor, allowing it to check different angles and create a scanning effect.

We plan to visualize the results on a screen, so the user can actually see the objects being detected in real time. This project helps us practice how to combine sensors, motors, and code in a single system.

As computer science students, we chose this project because it connects programming with real-world hardware. It allows us to apply our coding skills to control physical components and process sensor data efficiently. By working on this system, we can explore concepts like input/output handling, data visualization, and timing synchronization. The final prototype will show how software and hardware work together to perform smart, automated tasks.

Materials Used:

● 1 x Arduino Uno Rev3	≈ 24.-
● 1 x URM37 Ultrasonic Sensor	≈ 11.50.-
● 1 x SG90 Micro Servo	≈ 5.-
● 1 x USB-Cable (Type A to Type B)	≈ 5.-
● 1 x Jumper Cable Set (male to male)	≈ 8.-
● 1 x Breadboard	≈ 5.-
● 1 x Electrolyte condensator 470 µF	≈ 2.50.-
● 1 x Ceramic condensator 100 nF	≈ 3.-
● 1 x 5V 2A power supply	≈ 12.-
● 1 x Servo bracket	≈ 14.-
	Total: 90.-