

# Radar Project

01.16.2024

— <https://github.com/Cyphonvoid/Radar>

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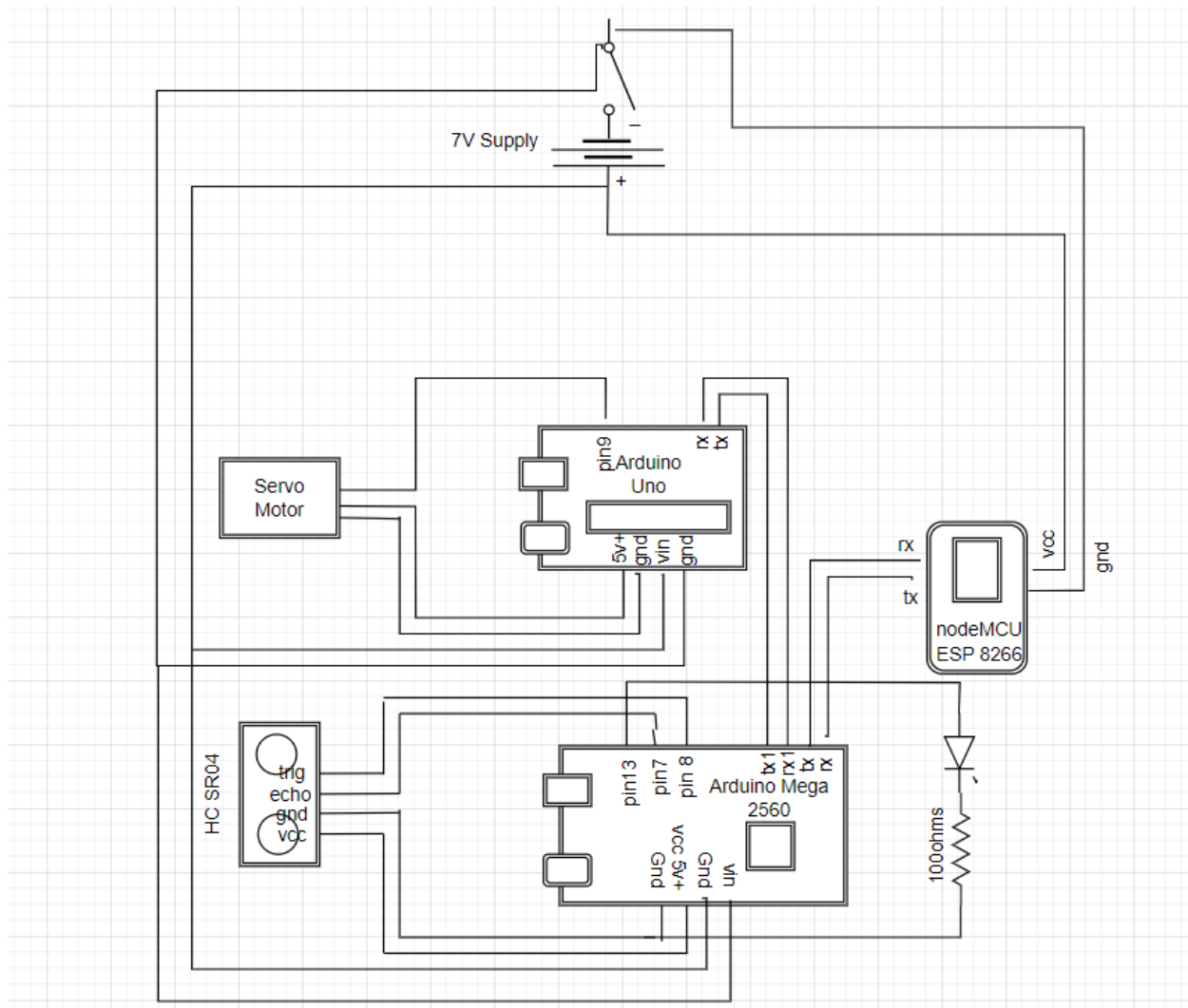
## Overview

Radar project is an active online A.I surveillance system designed for in house motion detection equipped with HC SR04 40 Khz high frequency ultrasonic sensor, MG90S 9g Micro

Servo motor and NodeMCU ESP8266 2.4ghz WiFi microcontroller. System self hosted Web Server using NodeMCU to provide RESTful Api calls to provide real-time data. System is fully integrated with real-time AI assistant support for efficient data interpretation and processing providing real-time insights into situations within houses.

## Design & Implementation

Radar system has been designed for better connectivity and mobility within indoor settings by providing lightweight 400g hardware embedded WiFi connectivity. Python middleware directly connects hardware to RAG based A.I architecture. Users can directly interact with AI assistant chatbot user interface in order to gain real-time data, insights, and more.



Here's a schematic of all the microcontrollers, sensors, motors etc.

## Functionalities

1. Provide real-time in house motion detection monitoring.
2. Provide detailed insights of unknown movements within the house.

## Future Upgrades

If this project evolves beyond its current capabilities it will be possible that A.I system will be able to learn and integrate hardware systems without the need for rigorous rule based specification as generalization and abstract reasoning capabilities of models absorb greater density of information of environment around us. As for now there are 4 planned upgrades to make slight improvements.

- 1) Improve hardware by using solid material plastic, metal, wood or cardboard.
- 2) Integrate high power laser module for offensive and defensive mechanisms.
- 3) Upgrade Meta llama3 8B instruct model to 70B model.
- 4) Release virtualized containers/pods of model instances for better efficiency using cloud technology.