IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 6, Issue 6, March 2026
Impact Factor: 8.2

Arduino Radar for Object Detection

Harshwardhan Santosh Satpute[1], Aditya Ashhwin Charakpalle[2], Yash Balasaheb Katu[3]
[1,2,3,]Students, Diploma in Information Technology
Vishweshwarayya Institute of Engineering and Technology, Almala, Maharashtra, India

Abstract: *This project, titled "Arduino Radar Object Detection System," involves the design and development of a cost-effective, real-time object detection and distance measurement system using Arduino microcontroller integrated with ultrasonic sensors and servo motors. The system continuously scans the surrounding environment, detects objects, measures their distance, and displays the data on a visual radar interface. The working principle is based on an embedded systems architecture utilizing Arduino UNO, HC-SR04 ultrasonic sensors, SG90 servo motors, and Processing software for radar visualization, which seamlessly creates an autonomous surveillance solution.*

The main objective of this project is to develop an accessible, automated, and reliable object detection system suitable for security applications, obstacle detection, and autonomous navigation in robotics. The Arduino Radar platform reduces dependency on expensive commercial radar systems, enables real-time object detection and distance calculation, and provides accurate spatial awareness compared to conventional offline detection methods. System design and research confirm that the platform performs reliably as an object detection mechanism, demonstrating the practical application of embedded systems and sensor technology in modern surveillance and navigation applications..

Keywords: Arduino, Radar System, Object Detection, Ultrasonic Sensors, Real-Time Detection, Embedded Systems, Distance Measurement

DOI: 10.48175/IJARSCT-32029