Radar based Object Detector using Arduino Uno

Madhu M[1], Megha K[2], Monika[3], Naksha B[4], Ganesh V N[5]
Department of Electronics and Communication Engineering[1,2,3,4,5]
Alva's Institute of Engineering and Technology, Mangalore, Karnataka, India
madhu14082004@gmail.com[1], meghacoolkarni@gmail.com[2], monikamadiwalkar@gmail.com[3],
nakshab326@gmail.com[4], ganeshvn@aiet.org.in[5]

Abstract: *Radar technology has been the backbone of several applications, ranging from aviation to meteorology, offering extremely valuable capabilities for object detection and tracking. Conventional radar systems, though highly powerful, are very costly and complex, which makes them not easily accessible in many fields. To address these issues, this research attempts to design and implement a radar system using Arduino micro controllers and ultrasonic sensors. This innovative approach relies on the flexibility and cost-effectiveness of the Arduino platform and the accuracy of ultrasonic sensors for distance measurement to build a radar-like system. The work addresses the development of the hardware, acquisition of data, processing of the signal, and real-time visualization, thus offering an accessible and costeffective alternative for applications of radar. The research will integrate Arduino technology with ultrasonic sensors into a radar system; it focuses on simplicity, affordability, and practicality, achieving The area it covers is between traditional radar and do-it-yourself systems, and then application windows open up as robotics, smart cities, industrial automation, and eventually into the education sector as well. The results outline above are opening new visions to designs in radar systems while pointing radar innovations to newer avenues of work.*

Keywords: Radar technology