

Human Following Robot using Arduino

Sonali Gaikwad¹, Sakshi Mahajan², Anushka Potghan³, Akshaya Kakade⁴, Prof. A. V. Raipure⁵

Students, Department of Electronics Engineering^{1,2,3,4}

Head of Electronics & Telecommunication Dept, Department of Electronics Engineering⁵

Pimpri Chinchwad Polytechnic, Pune, Maharashtra, India

Abstract: *Humanoid robotics is an emerging research field that has received significant attention during the past years and will continue to play an important role in robotics research and many applications of the 21st century and beyond. In this rapid moving world, there is a need of robot such “A Human Following Robot” that can interact and co-exist with them. Because of its human following capability, these robots can work as assistants for humans in various situations and it can also acquire or monitor certain information associated with the human subject. In this paper we present a prototype that uses Arduino Uno along with basic sensors such as ultrasonic and IR sensor. All the processing is carried out by the microprocessor while the control of the motors is carried out by the controller. This robot can further be modified by using many technologies such as Bluetooth, Pixy Camera, etc.*

Keywords: Robot, Ultrasonic Sensor, Bluetooth module, Neural network

REFERENCES

- [1]. K. Morioka, J.-H. Lee, and H. Hashimoto, “Human-following mobile robot in a distributed intelligent sensor network,” *IEEE Trans. Ind. Electron.*, vol. 51, no. 1, pp. 229–237, Feb. 2004.
- [2]. Y. Matsumoto and A. Zelinsky, “Real-time face tracking system for human-robot interaction,” in 1999 IEEE International Conference on Systems, Man, and Cybernetics, 1999. *IEEE SMC '99 Conference Proceedings*, 1999, vol. 2, pp. 830–835 vol.2.
- [3]. T. Yoshimi, M. Nishiyama, T. Sonoura, H. Nakamoto, S. Tokura, H. Sato, F. Ozaki, N. Matsuhira, and H. Mizoguchi, “Development of a Person Following Robot with Vision Based Target Detection,” in 2006 IEEE/RSJ International Conference on Intelligent Robots and Systems, 2006, pp. 5286–5291.
- [4]. H. Takemura, N. Zentaro, and H. Mizoguchi, “Development of vision based person following module for mobile robots in/out door environment,” in 2009 IEEE International Conference on Robotics and Biomimetics (ROBIO), 2009, pp.
- [5]. Muhammad Sarmad Hassan, Mafaz Wali Khan, Ali Fahim Khan, “Design and Development of Human Following Robot”, 2015, Student Research Paper Conference, Vol-2, No-15.
- [6]. N. Bellotto and H. Hu, “Multisensor integration for human-robot interaction,” *IEEE J. Intell. Cybern. Syst.*, vol. 1, no. 1, p. 1, 2005.