A STUDY ON GESTURE RECOGNITION AND TRANSLATION USING IOT

Sindhuja D*; Rajeshwari S**; Hariharan V***; Kaviraj S M G****; Jayaprakash M*****; Hariharan T******

[1,2,3,4,5,6]Researcher,
Mahendra Engineering College,
Namakkal, INDIA
Email id: sindhujad@mahendra.info

ABSTRACT

The usage of pics and the increasing popularity of human arm and hand gestures provide a practical and powerful manner of designing human-computer interfaces HMI human-laptop interactions HCI and human-robotic interactions HRI human gestures can also be seen as a herbal and tidy manner to communicate with machines as they function an important method of interplay among people this report introduces an innovative method for capturing and identifying each static and dynamic human gestures completed by means of making use of a flexible portable database or facts globe geared up with three or ten elastic sensors these transportable devices entice human fingers and hands to make sure that sensors are well positioned inside the joint this enables unique dimension of joint actions inside the shoulders elbows wrists and proximal joints of the palms and fingers this research introduces an innovative method for actual-time tracking and analysis of static and dynamic human gestures utilising the radial simple capabilities of neuronal networks RBFNNs dynamic time warping data is hired to pick out gestures by means of analysing and identifying capability dynamic behaviours and comparing discovered records with a set of reference styles which have been previously drawn the proposed answer additionally addresses static and dynamic gestures and movements involving a couple of joints in a fascinating location the consequences of experiments carried out on static and dynamic gestures had been analysed to decide their effectiveness in shooting and comprehending the provided techniques.

REFERENCES

1. Tsarouchi, Panagiota, et al. "High level robot programming using body and hand gestures."Procedia CIRP, vol. 55, pp. 1-5, 2016. doi: 10.1016/j.procir.2016.09.020.

2. Makris, Sotiris, et al. "Intuitive Dual arm robot programming for assembly operations", CIRP Annals–Manufacturing Technology, vol. 63no.1,pp.13-16, Jan 2014. http://dx.doi.org/10.1016/j.cirp.2014.03.017.

3. Makris S, Tsarouchi P, Matthaiakis A S, et al. "Dual arm robot in cooperation with humans for flexible assembly". CIRPAnnals–Manufacturing Technology, vol. 66, no. 1, pp. 13-16, 2017. doi 10.1016/j.cirp.2017.04.097.

4. Z. Lu, X. Chen, Q. Li, X. Zhang and P. Zhou, "A hand gesture recognition framework and wearable gesture-based interaction prototype for mobile devices," in IEEE Transactions on Human-Machine Systems, vol. 44, no.2, pp. 293-299, April 2014. doi: 10.1109/THMS.2014.2302794.

5. D. Avola, M. Bernardi, L. Cinque, G. L. Foresti and C. Massaroni, "Exploiting recurrent neural networks and leap motion controller for the recognition of sign language and semaphoric hand gestures," in IEEE Transactions on Multimedia, vol. 21, no. 1, pp. 234-245, Jan. 2019. doi: 10.1109/TMM.2018.2856094.

6. Z. Wang et al., "Using Wearable Sensors to Capture Posture of the Human Lumbar Spine in Competitive Swimming," in IEEE Transactions on Human-Machine Systems, vol. 49, no. 2, pp. 194-205, April 2019. doi: 10.1109/THMS.2019.2892318.

7. Regazzoni D, de Vecchi G, and Rizzi C, "RGB cams vs RGB-D sensors:Low cost motion capture technologies performances and limitations",Journal of Manufacturing Systems, vol. 33, no. 4, pp. 719-728, October2014. doi: 10.1016/j.jmsy.2014.07.011.

8. Amjadi M, Kyung K U, and Park I, "Stretchable, skin-mountable, and wearable strain sensors and their potential applications: a review", Advanced Functional Materials, vol. 26, no. 11, pp. 1678-1698, February 2016. doi: 10.1002/adfm.201504755.

9. X. Zhang, X. Chen, Y. Li, V. Lantz, K. Wang and J. Yang, "A framework for hand gesture recognition based on accelerometer and EMG sensors," in IEEE Transactions on Systems, Man, and Cybernetics - Part A: Systems and Humans, vol. 41, no. 6, pp. 1064-1076, Nov. 2011. doi: 10.1109/TSMCA.2011.2116004.

10. Tan C, Sun Y, and Li G, "Research on gesture recognition of smart data fusion features in the IoT", Neural Computing and Applications, pp. 1-13, January 2019. doi:10.1007/s00521-019-04023-0.