Gesture Recognition using Open CV

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Abstract: *With advanced technologies in this digital era, there is always scope for development in the field of computing. Hands free computing is in demand as of today it addresses the needs of quadriplegics. This paper presents a Human computer interaction (HCI) system that is of great importance to amputees and those who have issues with using their hands. The system built is an hand gesture-based interface that acts as a computer mouse to translate finger movements towards the mouse cursor actions with this we have implemented eye recognition/ detection. The system in discussion makes use of a simple webcam and its software requirements arespyder(anaconda 3), OpenCV, NumPy and a few other packages which are necessary for gesture recognition. The gesture detector can be built using the HOG (Histogram of oriented Gradients) feature along with a linear classifier, and the sliding window technique. It is hands free, and no external hardware or sensors are required..*

Keywords: Hands free computing

REFERENCES

[1]. C.-S. Lee, S. Y. Chun, and S. W. Park, "Articulated hand configuration and rotation estimation using extended torus manifold embedding," in Proceedings of the 21st International Conference on Pattern Recognition (ICPR '12), pp. 441–444, November 2012.

[2]. A. D. Bagdanov, A. Del Bimbo, L. Seidenari, and L. Usai, "Real-time hand status recognition from RGB-D imagery," in Proceedings of the 21st International Conference on Pattern Recognition (ICPR '12), pp. 2456–2459, November 2012. View at: Google Scholar

[3]. Chaudhary A, Raheja JL, Das K, Raheja S (2013) Intelligent approaches to interact with machines using hand gesture recognition in natural way: Survey. arxiv:1303.2292 Mcintosh J, BI Group (2017) SensIR: detecting hand gestures with a wearable bracelet using infrared transmission and reflection. In: Proceedings of the 30th annual ACM symposium on user interface software and technology, pp 593–597.

[4]. Pisharady PK, Saerbeck M (2015) Recent methods and databases in vision-based hand gesture recognition: a review. Comput Vis Image Underst 141:152–165.

[5]. Ren Z, Meng J, Yuan J (2011) Depth camera based hand gesture recognition and its applications in human-computer-interaction. In: 2011 8th international conference on information, communications & signal processing, pp 1–5.

[6]. Ali HH, Moftah HM, Youssif AAA (2017) Depth-based human activity recognition: a comparative perspective study on feature extraction.

[7]. Eye tracking research for HCI is based on VOG [17].

[8]. Top 12 Eye-tracking Technology Companies In The World | RoboticsBiz R.J.K. Jacob and K.S. Karn.

[9]. "Eye Tracking in Human-Computer Interaction and Usability Research: Ready to Deliver the Promises (Section Commentary)," in The Mind's Eye: Cognitive and Applied Aspects of Eye Movement Research, ed. by J. Hyona, R. Radach, and H. Deubel, pp. 573-605, Amsterdam, Elsevier Science (2003).