

Handy Mouse: Gesture Controlled Mouse

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Abstract: *The mouse is one of the wonderful inventions of Human-Computer Interaction (HCI) technology. Currently, wireless mouse or a Bluetooth mouse still uses devices and is not free of devices completely since it uses a battery for power and a dongle to connect it to the PC. In the proposed Handy mouse project, this limitation can be overcome by employing webcam or a built-in camera for capturing of hand gestures and hand tip detection using computer vision. The algorithm used in the system makes use of the machine learning algorithm. Based on the hand gestures, the computer can be controlled virtually and can perform left click, and computer cursor function without the use of the physical mouse. The algorithm is based on deep learning for detecting the hands. Hence, the proposed system will also avoid COVID-19 spread by eliminating the human intervention and dependency of devices to control the computer.*

Keywords: Mediapipe, OpenCV, Gestures, Object Detection

REFERENCES

- [1]. D. L. Quam, "Gesture recognition with a DataGlove," IEEE Conference on Aerospace and Electronics, vol. 2, pp. 755–760, 1990
- [2]. D.-H. Liou, D. Lee, and C.-C. Hsieh, "A real-time hand gesture recognition system using motion history image," in Proceedings of the 2010 2nd International Conference on Signal Processing Systems, July 2010
- [3]. S. U. Dudhane, "Cursor control system using hand gesture recognition," IJAR CCE, vol. 2, no. 5, 2013.
- [4]. K. P. Vinay, "Cursor control using hand gestures," International Journal of Critical Accounting, vol. 0975–8887, 2016.
- [5]. S. S. Abhilash, L. Thomas, N. Wilson & C. Chaithanya, "VIRTUAL MOUSE USING HAND GESTURE," International Research Journal of Engineering and Technology (IRJET), vol. 05 issue: 4, April 2018
- [6]. Camillo Lugaresi, Jiuqiang Tang, Hadon Nash, Chris McClanahan, Esha Ubaweja, Michael Hays, Fan Zhang, Chuo-Ling Chang, Ming Guang Yong, Juhyun Lee, Wan-Teh Chang, Wei Hua, Manfred Georg and Matthias Grundmann "In MediaPipe: A Framework for Building Perception Pipelines" arXiv:1906.08172v1 [cs.DC] 14 Jun 2019
- [7]. Fan Zhang Valentin Bazarevsky Andrey Vakunov Andrei Tkachenka George Sung Chuo-Ling Chang Matthias Grundmann Google Research "MediaPipe Hands: On-device Real-time Hand Tracking 1600 Amphitheatre Pkwy, Mountain View, CA 94043, USA.
- [8]. M. Naveenkumar, A. Vadivel "OpenCV for Computer Vision Applications" Proceedings of National Conference on Big Data and Cloud Computing (NCBDC'15), March 20, 2015
- [9]. Tran, DS., Ho, NH., Yang, HJ. et al., (2021) "Real-time virtual mouse system using RGB-D images and fingertip detection" "Multimedia Tools and Applications volume 80, pages 10473–10490 (2021)