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A Smart System using Hand Gestures and Voice

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Abstract: *Human-Computer Interaction (HCI) grew enormously over the years. Hand gesture recognition technology brought a brand-new era to the artificial intelligence branch of human-computer interaction. Hand Gesture-based communication is one of the most effortless and natural methods. Identifying and interpreting hand gestures from a continuous sequential stream of input data is called gesture recognition. Amateur or aged people find it hard to identify and press the exact alphabet that they need. Overcoming this difficulty stands as the ultimate goal for our proposed system. Typing has taken many forms, first using a keyboard, gradually changing to touch screens, and now too much easier finger motion tracking systems. The gesture is made by the user is detected by the machine via the image processing techniques and the operation unique to the machine is carried out, thereby minimizing the requirement of any hardware input device. This paper proposes a virtually controlled system that uses hand gestures and voice to perform operations. The system will allow the user to manage cursor, keyboard, and writing functions using hand gestures, and also provides the user with an additional feature to convert the user's voice to text. The proposed system utilizes a webcam as an input device. This application will add a brand-new era of HCI implementation for educational purposes.*

Keywords: Artificial Intelligence, Gesture Recognition, Human-Computer Interaction, Webcam, Efficient Interaction, Intuitive communication

REFERENCES

[1]. F. Soroni, S. a. Sajid, M. N. H. Bhuiyan, J. Iqbal and M. M. Khan, "Hand Gesture Based Virtual Blackboard Using Webcam," 2021 IEEE 12th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON), 2021, pp. 0134-0140, doi: 10.1109/IEMCON53756.2021.9623181.

[2]. R. Lyu et al., "A flexible finger-mounted airbrush model for immersive freehand painting," 2017 IEEE/ACIS 16th International Conference on Computer and Information Science (ICIS), 2017, pp. 395-400, doi: 10.1109/ICIS.2017.7960025.

[3]. Prof. S.U. Saoji, Nishtha Dua, Akash Kumar Choudhary, Bharat Phogat "Air Canvas application using OpenCV and NumPy in python"International Research Journal of Engineering and Technology, Volume: 08, Issue 08 Aug 2021

[4]. K. V. V. Reddy, T. Dhyanchand, G. V. Krishna and S. Maheshwaram, "Virtual Mouse Control Using Colored Finger Tips and Hand Gesture Recognition ", 2020, doi:10.1109/HYDCON48903.2020.9242677.

[5]. P. Ramasamy, G. Prabhu and R. Srinivasan, "An economical air writing system converting finger movements to text using web camera," 2016 International Conference on Recent Trends in Information Technology (ICRTIT), 2016, pp. 1-6, doi: 10.1109/ICRTIT.2016.7569563.

[6]. C. D. Sai Nikhil, C. U. Someswara Rao, E. Brumancia, K. Indira, T. Anandhi and P. Ajitha, "Finger Recognition and Gesture based Virtual Keyboard," 2020 5th International Conference on Communication and Electronics Systems (ICCES), 2020, pp. 1321-1324, doi: 10.1109/ICCES48766.2020.9137889.

[7]. S. Bano, P. Jithendra, G. L. Niharika and Y. Sikhi, "Speech to Text Translation enabling Multilingualism," 2020 IEEE International Conference for Innovation in Technology (INOCON), 2020, pp. 1-4, doi: 10.1109/INOCON50539.2020.9298280.

[8]. S. R. Chowdhury, S. Pathak and M. D. A. Praveena, "Gesture Recognition Based Virtual Mouse and Keyboard," 2020 4th International Conference on Trends in Electronics and Informatics (ICOEI)(48184), 2020, doi: 10.1109/ICOEI48184.2020.9143016.

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[9]. K. H. Shibly, S. Kumar Dey, M. A. Islam and S. Iftekhar Showrav, "Design and Development of Hand Gesture Based Virtual Mouse," 2019 1st International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT), 2019, pp. 1-5, doi: 10.1109/ICASERT.2019.8934612.

[10]. M. S. Alam, K. -C. Kwon and N. Kim, "Trajectory-Based Air-Writing Character Recognition Using Convolutional Neural Network," 2019 4th International Conference on Control, Robotics and Cybernetics (CRC), 2019, pp. 86- 90, doi: 10.1109/CRC.2019.00026.

[11]. S.S. Abhilash, L. Thomas, N. Wilson and C. Chaithanya, "Virtual Mouse Using Hand Gesture", International Research Journal of Engineering and Technology (IRJET), vol. 5, no. 4, pp. 3903-3906, 2018

[12]. S. Song, D. Yan and Y. Xie, "Design of control system based on hand gesture recognition," 2018 IEEE 15th International Conference on Networking, Sensing and Control (ICNSC), 2018, pp. 1-4, doi: 10.1109/ICNSC.2018.8361351.