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**ABSTRACT**

Hand gesture recognition is to interpret the human gestures using certain mathematical algorithms for computer interaction. They are widely used in gaming, media player control, robot control etc. It enables the humans to interact with the machine directly without any means of mechanical devices thereby improving the work efficiency of the machine used. It makes it possible for the cursor on the screen to move accordingly by just pointing our finger. Hand gesture recognition plays an important role as it helps in the development of human-centered human-computer interaction. Gesture recognition is very useful in situations where processing of the information cannot be conveyed through text or speech.

In our project hand gestures are used to train the model and perform certain actions like scrolling down a page, scrolling up a page, zooming in, and zooming out. The gestures are recorded in real time and sent to the model trained using convolutional neural networks (CNN) which sorts the gestures and maps them to their corresponding actions. PyAutoGUI is used to control the PDF or book using the commands that are generated based on the respective hand gestures made.

The model that has been created so far is capable of performing only the given list of actions for the trained gestures. It will be able to recognize only one hand within the frame. Even if it recognizes multiple hands the gestures will not have an effect on the PDF or book used due to ambiguity that arises. The model correctly classifies the hand gestures and performs the much-needed actions with an accuracy of 99.94 % on the training dataset and an accuracy of 92% on the test dataset.

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