

Human Computer Interaction Using Computer Vision and Speech Processing

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Abstract : Internet of Things (IoT) is seen as the next major step in the ongoing revolution in the Information Age. It is predicted that in the near future billions of embedded devices will be communicating with each other to perform a plethora of tasks with or without human intervention. One of the major ongoing hotbed of research activity in IoT is Human Computer Interaction (HCI). HCI is used to facilitate communication between an intelligent system and a user. An intelligent system typically comprises of a system consisting of various sensors, actuators and embedded controllers which communicate with each other to monitor data collected from the environment. Communication by the user to the system is typically done using voice. One of the major ongoing applications of HCI is in home automation as a personal assistant. The prime objective of our project is to implement a use case of HCI for home automation. Our system is designed to detect and recognize the users and personalize the appliances in the house according to their individual preferences. Our HCI system is also capable of speaking with the user when certain commands are spoken such as searching on the web for information and controlling appliances. Our system can also monitor the environment in the house such as air quality and gas leakages for added safety.

Keywords : human computer interaction, internet of things, computer vision, sensor networks, speech to text, text to speech, android

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