

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



Project Name: Gesture Control Presentation

Project Title : Hand-Gesture-Recognition-for-Presentation-Process

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Introduction

- ▶ Today gesture recognition plays a significant role in the interaction between humans and computers. To facilitate simple yet user-friendly communication between humans and computers hand Gestures can be used which enable us humans to interact with machines without having to use devices like keyboards, laser pens, etc. In the proposed system, users can use some simple gestures to control the SLIDESHOW Presentation without physically touching the mouse/keyboard.

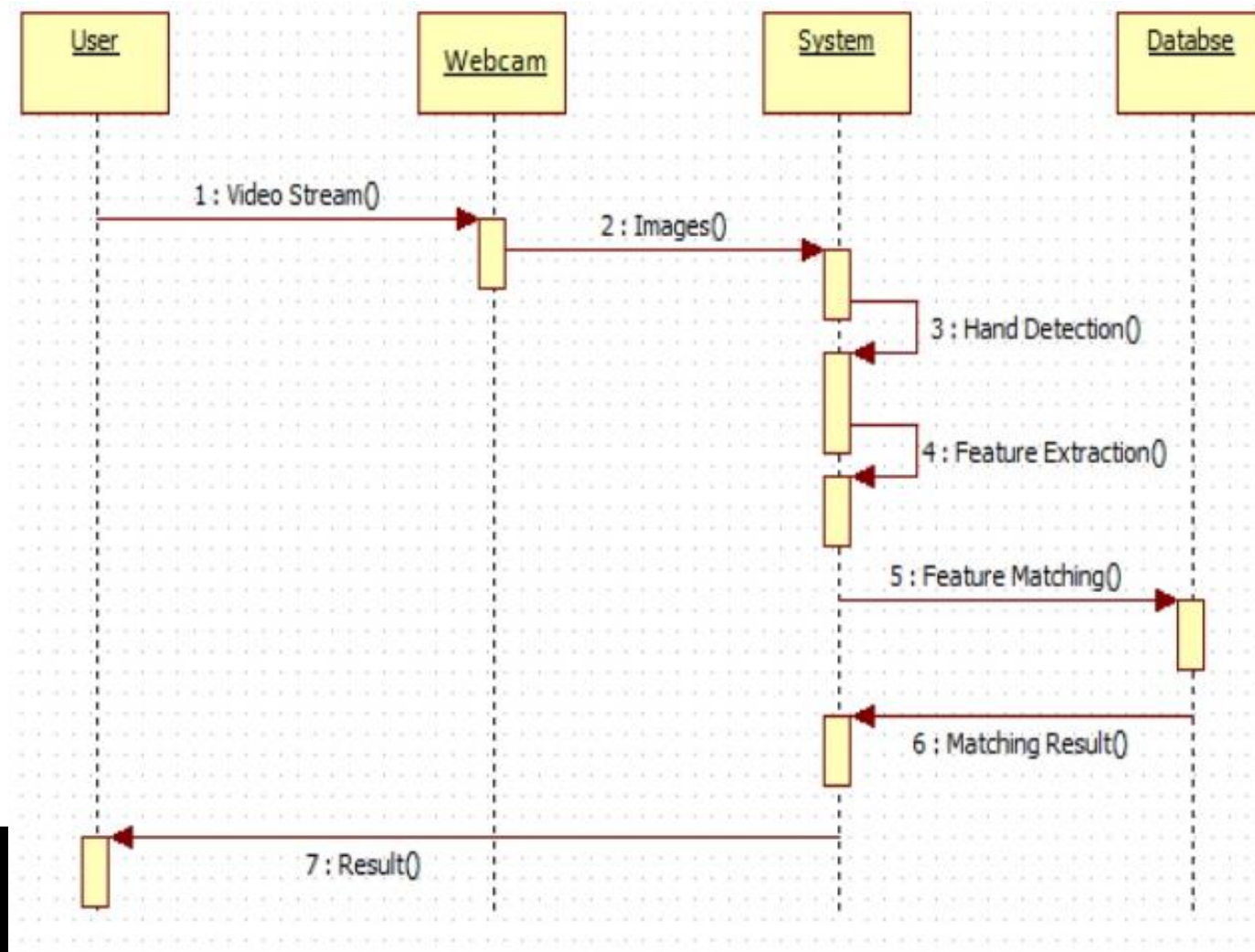
Problem Statement

- This system does not makes use of traditional methods for hand gesture recognition such as by using hand-gloves, markers, rings, pens or any other devices..
- This system makes possible the control of Power Point presentation through distance. It is not necessary for the user to control the Power Point presentation through keyboard or mouse or laser pointer
- The camera is positioned such that it recognizes the motion of finger tips and performs the operation of mouse.

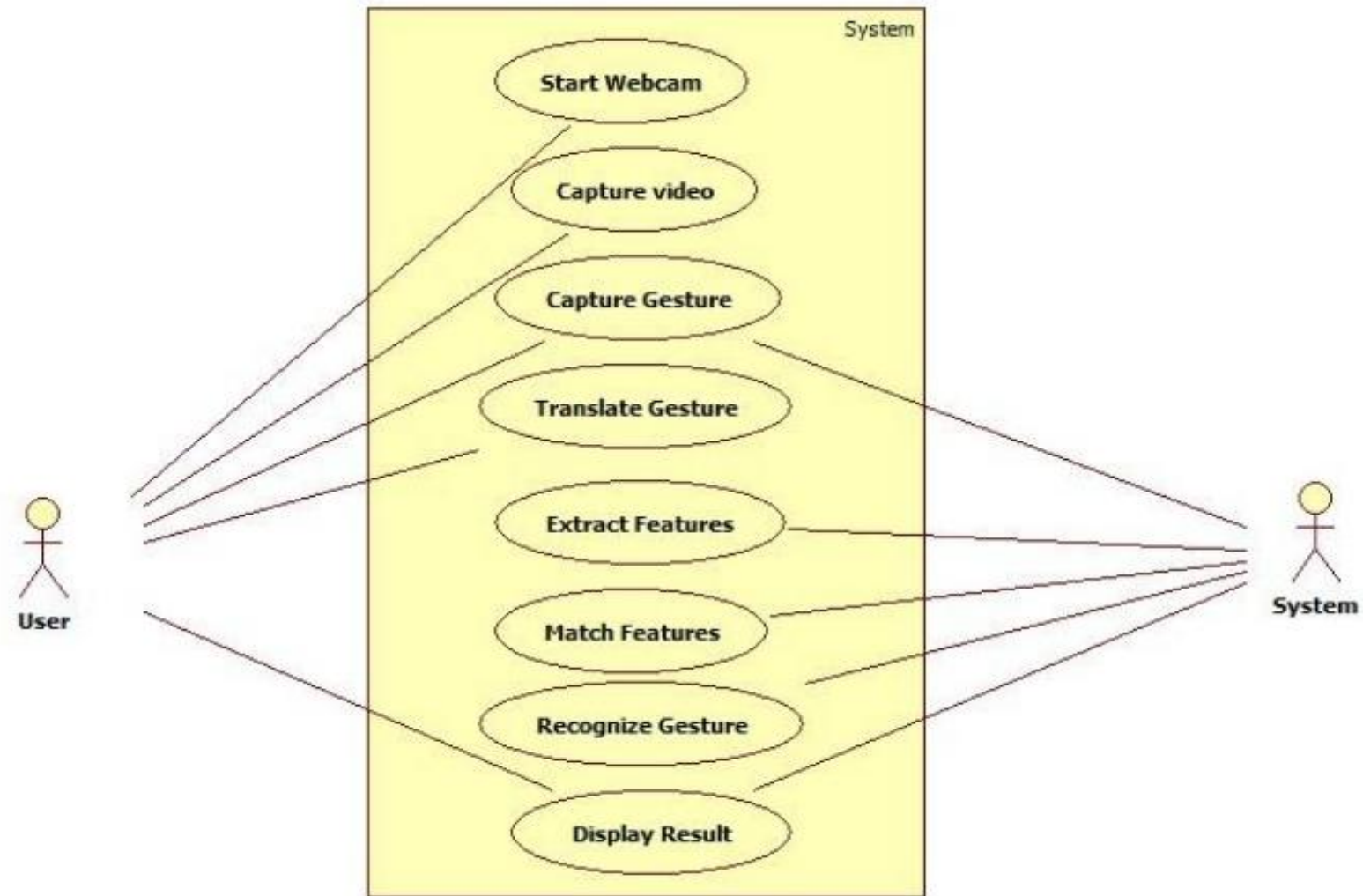
Literature Review

| year | System uses | Results |
|---|--|---|
| Submitted to the Department of Electrical Engineering and Computer Science in partial fulfillment of the requirements for the degree of Master of Engineering in Electrical Engineering and Computer Science at the MASSACHUSETTS INSTITUTE OF TECHNOLOGY June 2013 | The system uses an HMM to classify the performed gestures in conjunction with an SVM to perform real-time segmentation of gestures. | HMM alone cannot solve this because we need to segment the continuous sequence of body movements into distinct sequences for the HMM to classify. |
| <u>2017 International Conference on Computing Methodologies and Communication (ICCMC)</u> Date Added to IEEE Xplore: 08 February 2018 | In the processed image is then compared with the database of gesture images. Image is compared and recognized using K-nearest neighbor algorithm. | It is a lazy learner i.e. it uses all the training data at the runtime and hence is slow. Complexity is $O(n)$ for each instance to be classified. Curse of dimensionality: distance can be dominated by irrelevant attributes. |
| Present MediaPipe Released: Jun 25, 2021 | MediaPipe is a frame work that the developer can configure an application built with MediaPipe to manage resources efficiently (both CPU and GPU) for low latency performance, to handle synchronization of time-series data such as audio and video frames and to measure performance and resource consumption. | To obtain ground truth data, we have manually annotated ~30K real-world images with 21 3D coordinates. To better cover the possible hand poses and provide additional supervision on the nature of hand geometry, we also render a high-quality synthetic hand model over various backgrounds and map it to the corresponding 3D coordinates. |

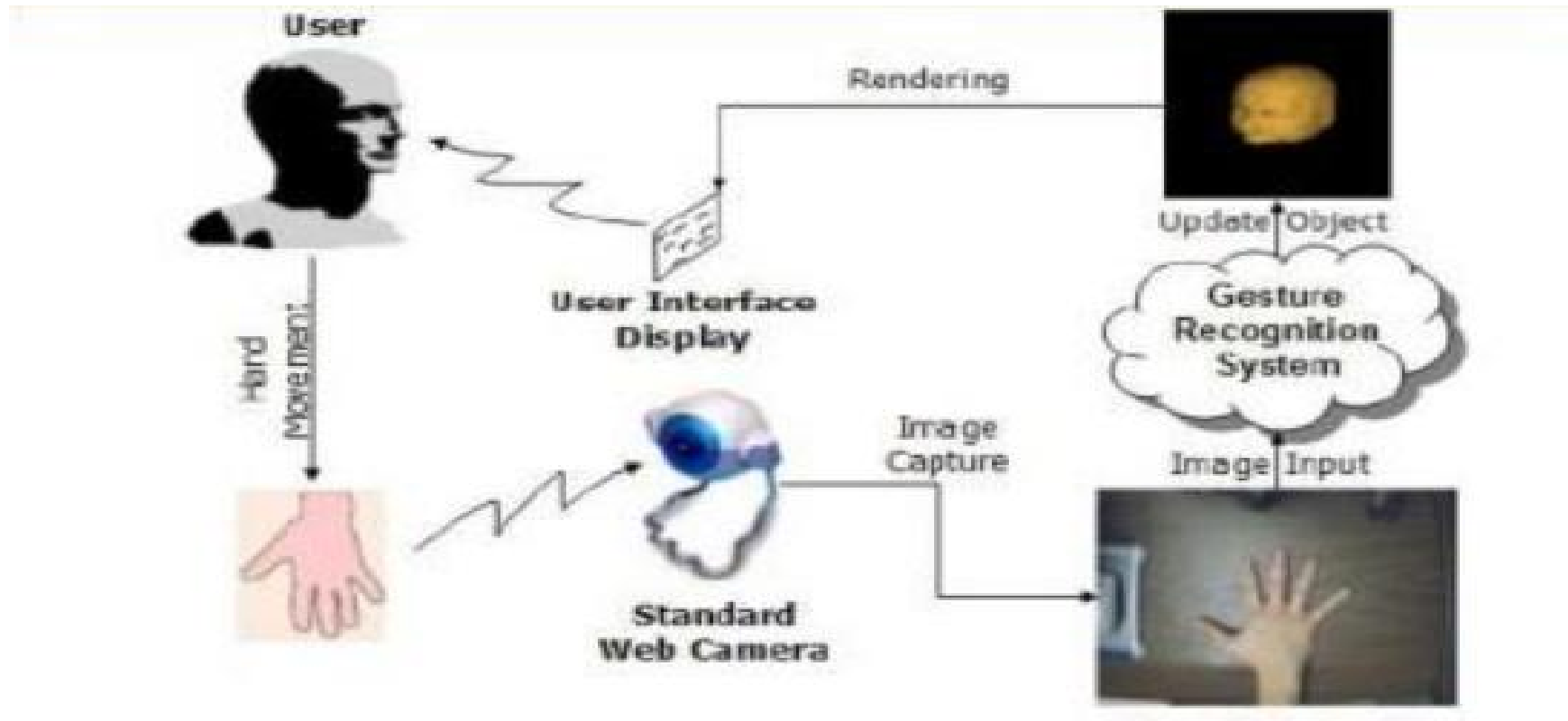
Sequence Diagram



UML Diagram




System Architecture Diagram



Conclusion

This project describes a system that controls power point slides with the help of hand gestures. The method proposed here successfully created a hand gesture recognition system, that is able to recognize which gesture is performed by the user and accurately perform the functionality associated with it. Presently, the webcam, microphone and mouse are an integral part of the computer system. Our product which uses only webcam would completely eliminate the mouse in the presentation. Also this would lead to a new era of Human Computer Interaction (HCI) where no physical contact with the device is required.



Referencing

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Analysis and Understanding of Time Varying Imagery **Date Added to IEEE Xplore:** 06
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fulfillment of the requirements for the degree of Master of Engineering in Electrical Engineering and
Computer Science at the MASSACHUSETTS INSTITUTE OF TECHNOLOGY June 2013

[3] 2017 International Conference on Computing Methodologies and Communication
(ICCMC)
Date Added to IEEE Xplore: 08 February 2018

[4] D. I. Ko and G. Agarwal, Gesture Recognition: Enabling Natural Interactions with
Electronics. Dallas, TX, USA: Texas Instruments, Apr. 2012.

[5] Swapnil D. Badgujar, Gourab Talukdar, Omkar Gondhalekar and S. Y. Kulkarni
"A Novel Gesture Recognition System", International Journal of Scientific and Research
Publications, Feb. 2014, pp. 2250-3153.

Thank You

