



# HCI PRESENTATION

## Research Topic

Presented by: Irfan Rahmani  
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## Smart Projector with Wireless Mouse

Authors:

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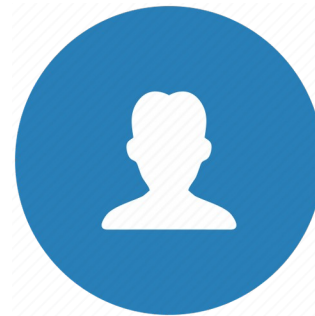
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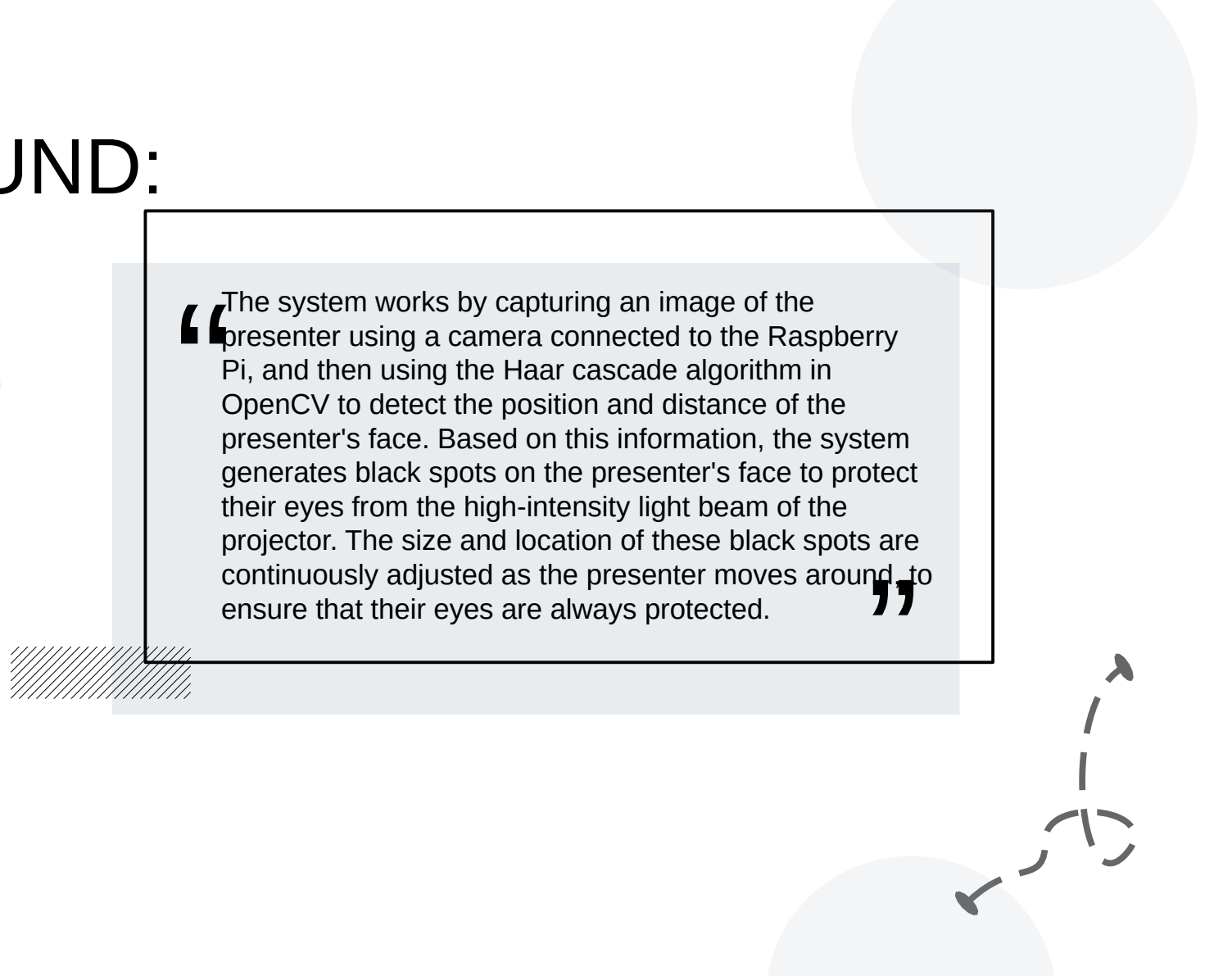
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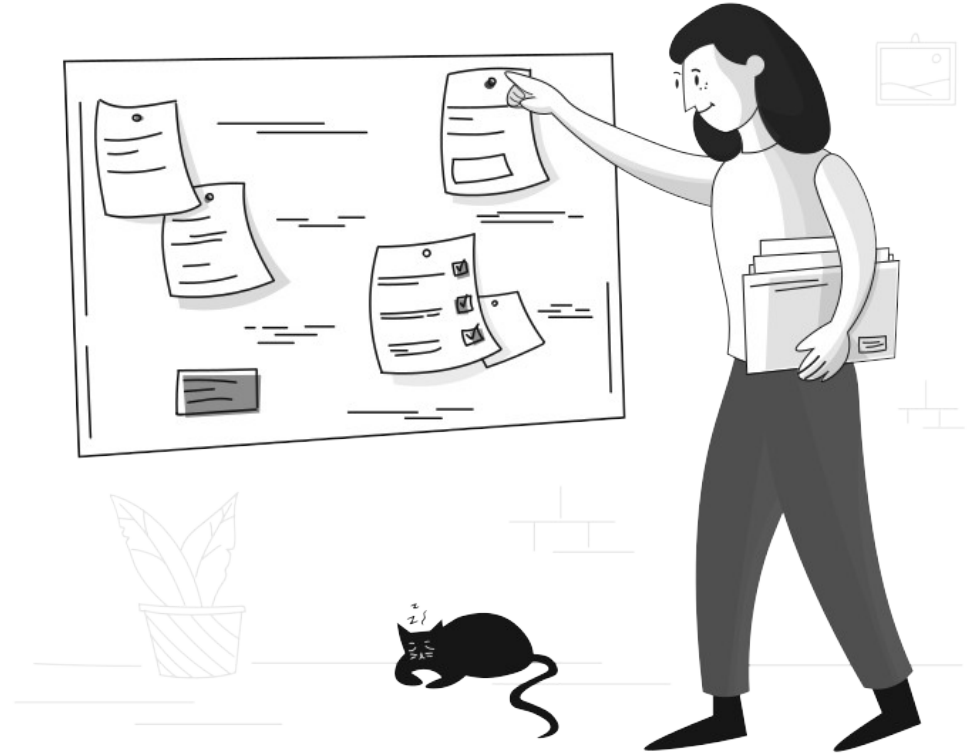
# BACKGROUND:

“The system works by capturing an image of the presenter using a camera connected to the Raspberry Pi, and then using the Haar cascade algorithm in OpenCV to detect the position and distance of the presenter's face. Based on this information, the system generates black spots on the presenter's face to protect their eyes from the high-intensity light beam of the projector. The size and location of these black spots are continuously adjusted as the presenter moves around, to ensure that their eyes are always protected.”

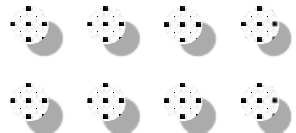


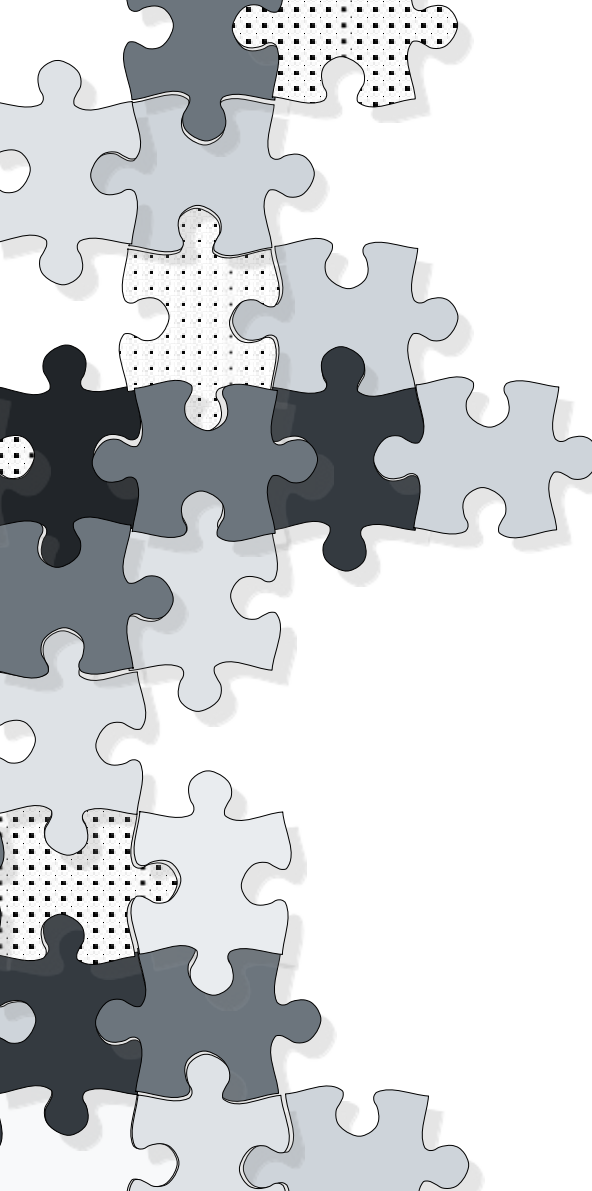
## Devices Used:

- Raspberry Pi 3
- Camera
- Wireless Mouse
- Projector

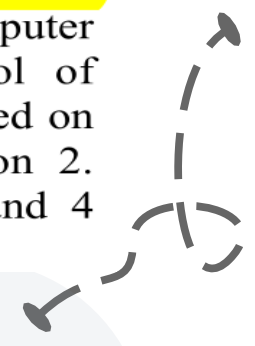


Illustrations by [Pixeltrue](#) on  
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From this phenomenon, with the blurred background laser can easily detect by the camera due to high intensity light of laser as compare to other projected color. Laser can control the mouse and mouse changes the slides. In [13] algorithm has been presented to make the fast system handling the mouse pointer by location of laser light. It would be appealing to control the slides and mouse with the same laser light that makes the comfortable and user friendly to the presenter, it has been discussed in [14] human computer interaction (HCI) with laser to interaction with display system in terms of projection points. This project provides the solution of above mentioned problems in a single package, this device will mount on the multimedia projectors that protect the presenter eyes and control the wireless air mouse through laser by considering the coordinate systems with their projections on projector screen. This project is built on single board computer Raspberry pi 3 using Python programming with tool of OpenCV. This paper is organized as: section 1 is based on introduction and methodology is discussed in section 2. Results and conclusion are discussed in section 3 and 4 respectively.





# Introduction:

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- Eye Protection Algorithm
  - Air Mouse Algorithm

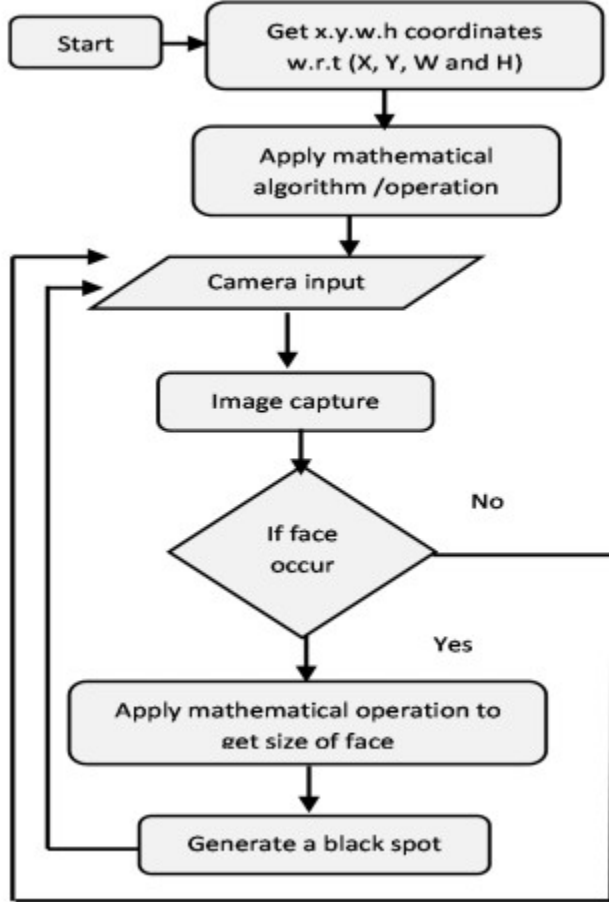


Figure 1 Eye Protection algorithm

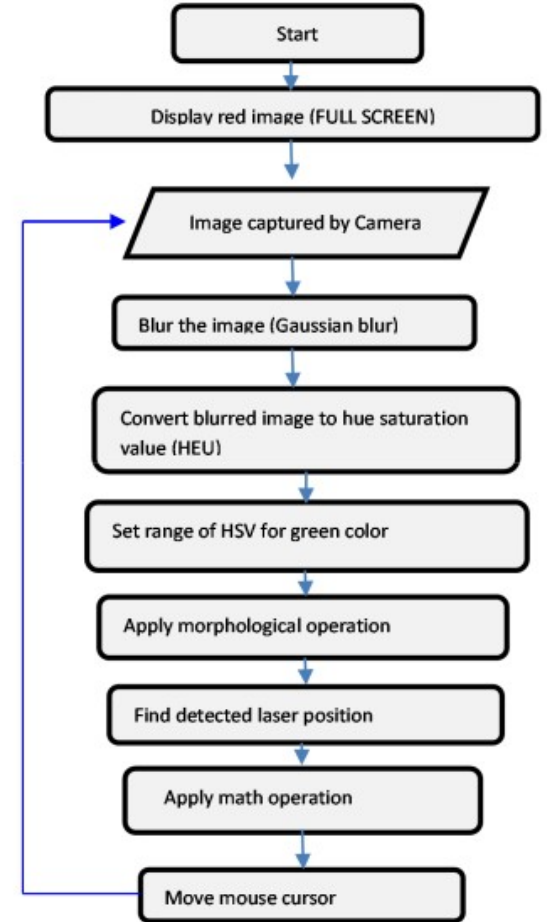


Figure 2 Air mouse algorithm

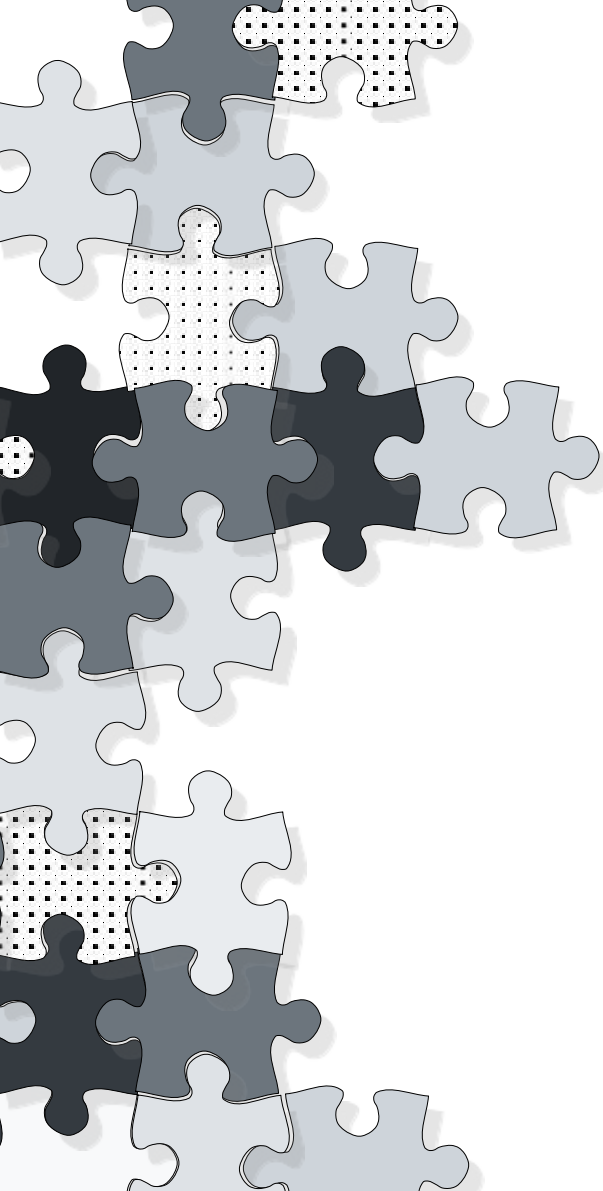


# Our Proposal

Implementation of the same idea with similar functionality in cheaper cost,

- We will replace raspberry pi 3 with an android device.
- If android device is used the multimedia can be controlled by using the same device.
- To link the multimedia, the device anycast M9 plus may be used to wirelessly connect multimedia to android device.
- Dependency of the computer is eliminated.
- Any Cast M9 Plus have support for iOS airdrop so now iOS devices are also capable to using the methodology.





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THANK YOU

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