VI SEMESTER MINI PROJECT (GROUP 6)

GROUP MEMBERS

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INTRODUCTION

We'll be creating a webpage for intelligent de-smoking/de-hazing algorithm for firefighters to access during rescue. It will work as follows:

1) A real-time video monitoring device such as mobile camera will be kept stationary at an indoor place for capturing video feed & sending to the web page for access to firefighters.
2) The processing of the real-time video will be done frame-by-frame using appropriate image processing techniques in OpenCV operated at the backend.
3) The generated de-smoked & de-hazed video will be displayed on the web page accessed by the firefighters.

PROBLEM STATEMENT

AI-ML based intelligent de-smoking / de-hazing algorithm

METHODOLOGY

➢ **Step 1: User Interface**

- User visits our webpage and interacts with a user-friendly UI built using HTML, CSS, and JavaScript.
- Which consist of login page, user dashboard, about us section.

➢ **Step 2: Video Upload / Real time video**

User uploads a video through the webpage, either by selecting a file from their device or copying from browser or real time video access using camera module.

➢ **Step 3: Server-Side Handling**

The server (built using firebase) receives the uploaded video file and manages the backend operations.

METHODOLOGY

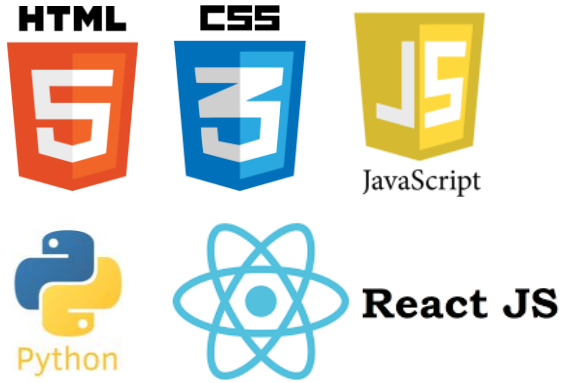
➢ **Step 4: Video Processing**

The uploaded video is processed using the Open-CV library, performing operations like de-smoking & de-hazing.

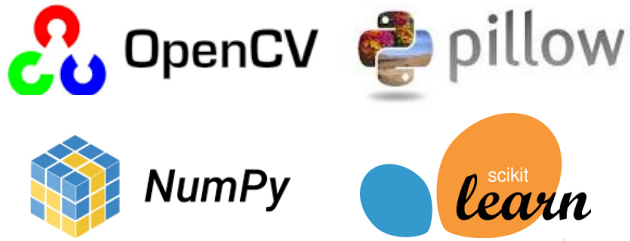
➢ **Step 5: Result Display**

The processed video will be displayed on our webpage with original video, where the user can see the difference between both videos.

TECHNOLOGY STACK



Languages



Libraries

Frameworks & Working tools

EXPECTED OUTCOMES

✓ **Technological Innovation:**

The project may involve the development of innovative algorithms, software, or hardware solutions to address the challenges posed by haze, fog, or similar conditions. This could include advancements in image processing, computer vision, machine learning, or sensor technology.

✓ **Commercial Applications:**

Depending on the project's objectives, there may be opportunities for commercial applications, such as the development of products or services for industries like automotive, aviation, security, photography, or cinematography.

RESEARCH PAPERS

- Zhu, H., Xu, G., Liu, L., & Deng, L. (2021, January 26). Video smoke removal based on low-rank tensor completion via spatial-temporal continuity constraint. Concurrency and Computation: Practice and Experience, 33(15). https://doi.org/10.1002/cpe.6169

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- Jini Elsa Joseph. (2020, June 30). A Comprehensive Review on Image Dehazing. International Journal of Engineering Research And, V9(06). https://doi.org/10.17577/ijertv9is060822

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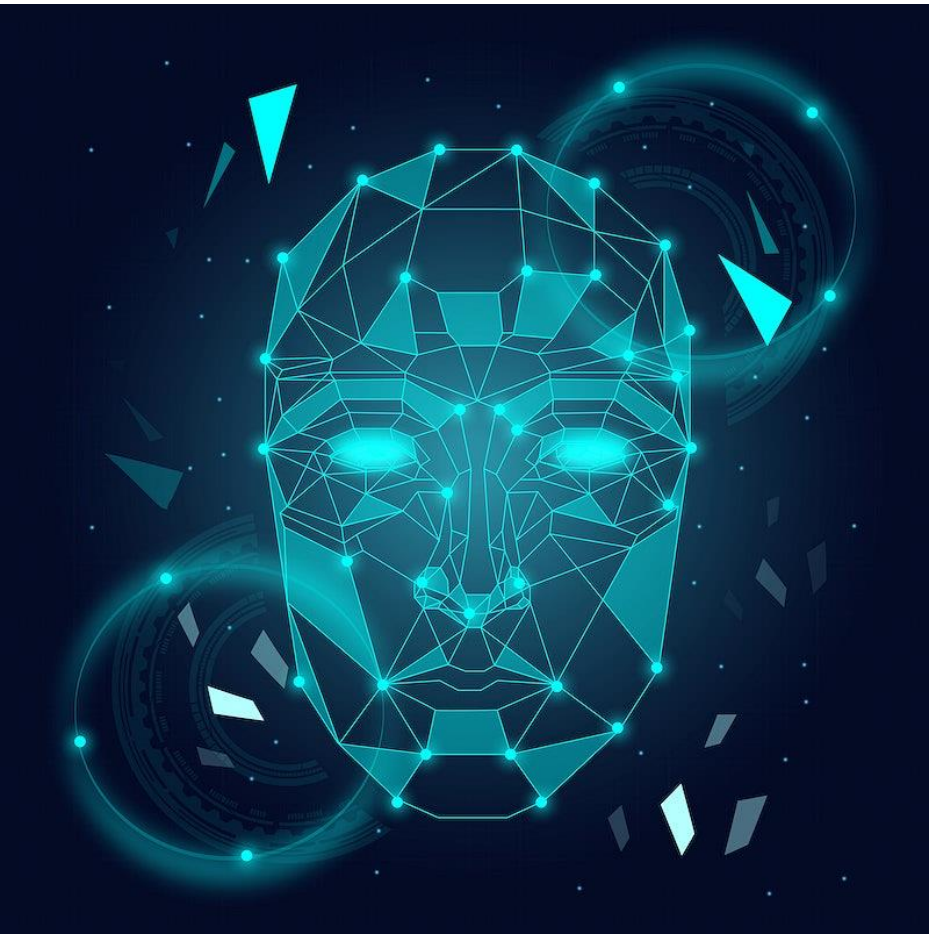
- Lu, J., & Dong, C. (2019, December 6). DSP-based image real-time dehazing optimization for improved dark-channel prior algorithm. Journal of Real-Time Image Processing, 17(5), 1675–1684. https://doi.org/10.1007/s11554-019-00933-3



THANK YOU