FACE MASK

DETECTION

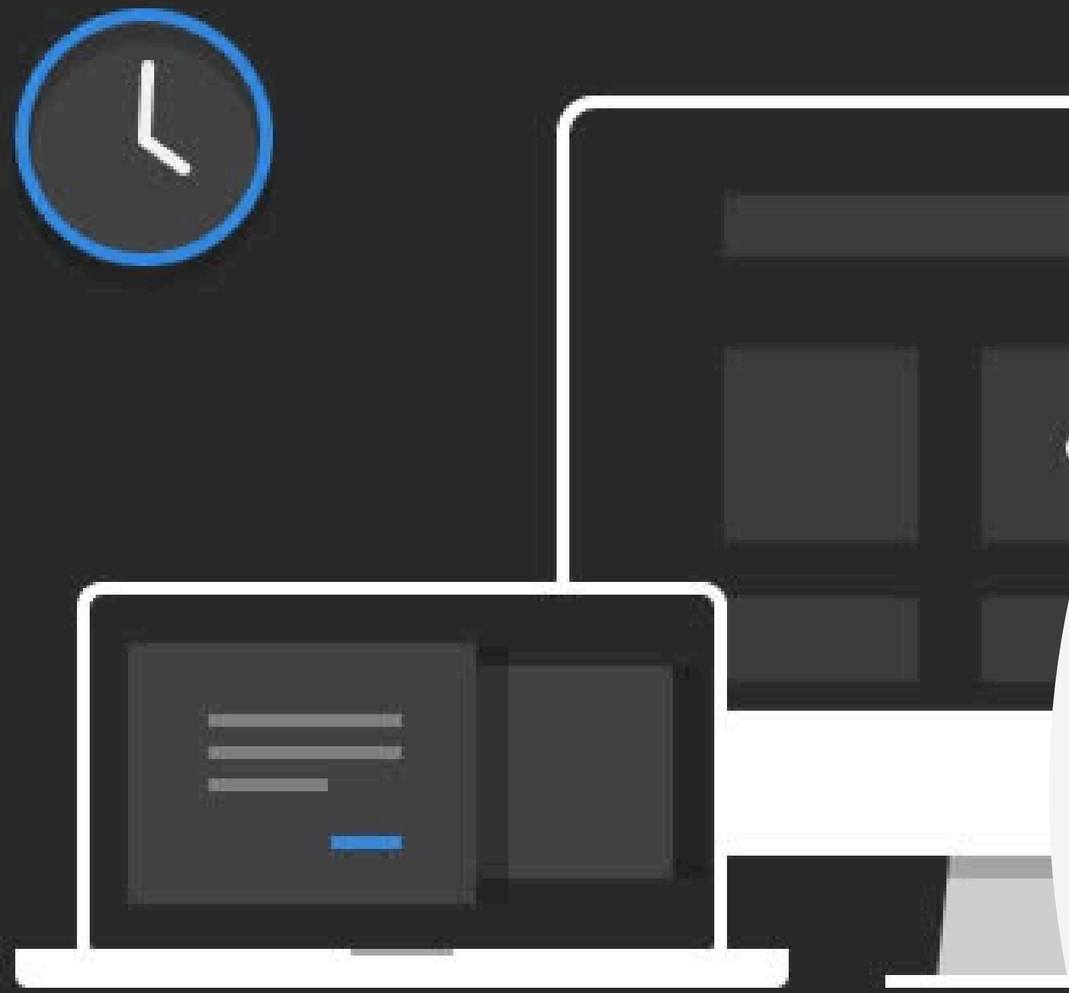
WWW.FACEMASKDETECTION.COM

CONTENT

INTRO

Face mask detection technology is an innovative solution that uses computer vision algorithms to determine whether individuals in images are wearing masks, helping to enforce public health safety measures effectively.

BACKGROUND



To prevent the spread of infectious diseases, such as COVID-19, through the use of face masks

Ensure that healthcare workers and patients are wearing masks, reducing the risk of infection and ensuring the safety of all individuals in these environments.

PROBLEM STATEMENT

1. **The increasing number of people who do not wear masks in public places, which can contribute to the spread of infectious diseases, such as the COVID-19 pandemic**
2. **In high-risk environments, such as hospitals and healthcare facilities, where the risk of infection is higher.**

public safety

Security

preventing infectious diseases

FEATURES

- Dataset Loading
- Feature Extraction
- Preprocessing
- Model Training
- Model Evaluation

TECHNOLOGIES USED

Python

NumPy

OpenCV (cv2)

scikit-image (skimage)

scikit-learn (sklearn)

EVALUATION

01 **Accuracy**

It measures the fraction of predictions our model got right. It's calculated as the ratio of correctly predicted instances to the total instances.

02 **R-squared (Coefficient of Determination)**

It indicates the proportion of the variance in the dependent variable that is predictable from the independent variable. It's a measure of how well the predicted values match the actual values.

EVALUATION

03 **Mean Squared Error (MSE)**
It measures the average of the squares of the errors or deviations. It's a measure of the quality of an estimator.

04 **F1 Score**
It is the harmonic mean of precision and recall. It considers both false positives and false negatives.

CHALLENGES

Variability in Face Masks

Face masks come in various shapes, sizes, and colors, making it challenging to develop a universal detection algorithm.

Accuracy and Reliability

The system must accurately identify whether a person is wearing a mask or not, even in different lighting conditions and angles.

Scalability:

It should be scalable to handle large crowds in various public settings such as airports, train stations, supermarkets, etc.

Privacy Concerns

Ensuring the privacy of individuals while deploying such systems is crucial.

FUTURE SCOPE

Improved Accuracy

Continuously refining algorithms to improve accuracy in detecting whether masks are worn properly.

Enhanced Surveillance

Utilizing face mask detection technology for broader surveillance purposes, such as monitoring social distancing and crowd management.

Mask Quality Detection:

Expanding the system to not only detect the presence of a mask but also assess its quality and fit.

Mask Compliance Analytics

Analyzing data collected from face mask detection systems to understand compliance trends and improve public health strategies.

CONCLUSION

In this project, developed a face mask detection system using a logistic regression model and Histogram of Oriented Gradients (HOG) features

While face mask detection system performs reasonably well, there is always room for improvement.
Potential areas are: Data Augmentation, Model Optimization & Real-time Detection

By further refining model efficient face mask detection system that can be deployed in various real-world scenarios.

THANKS FOR WATCHING