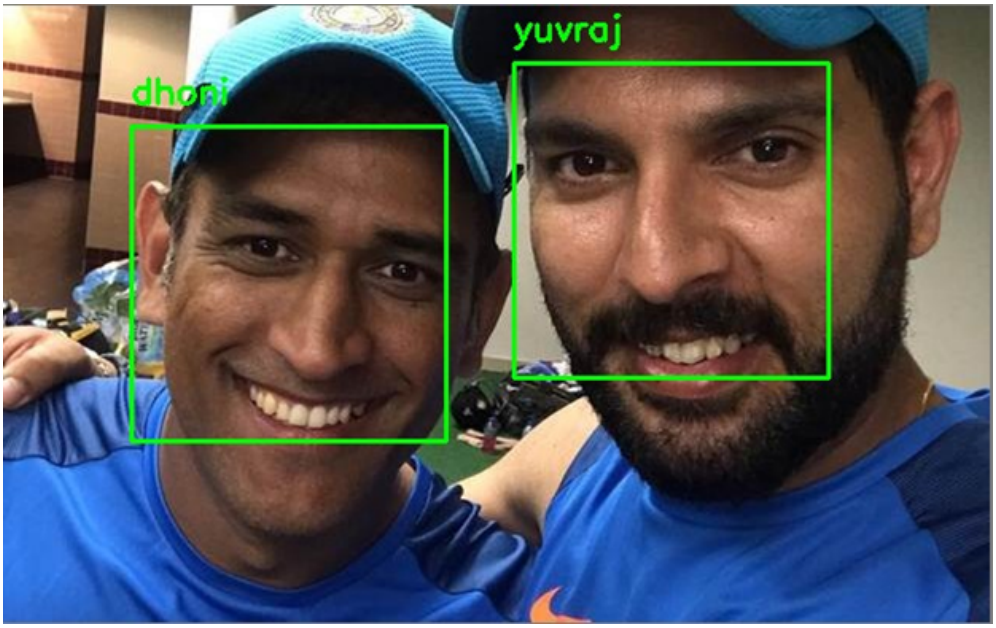
HIGH QUALITY FACIAL RECOGNITION SYSTEM

1. INTRODUCTION

- **Overview -** Facial recognition is the process of identifying or verifying the identity of a person using their face. It captures, analyzes, and compares patterns based on the person's facial details. High-Quality Facial Recognition System has many applications starting from mobile phones to security cameras. The face detection process is an essential step as it detects and locates human faces in images and videos.
- **Purpose -** A facial recognition system uses biometrics to map facial features from a photograph or video. It compares the information with a database of known faces to find a match. Facial recognition can help verify personal identity, but it also raises privacy issues.

2. RESULT



3. APPLICATIONS

- **Face Identification -** Face recognition systems identify people by their face images. These systems establish the presence of an authorized person rather than just checking whether a valid identification (ID) or key is being used or whether the user knows the secret personal identification numbers (Pins) or passwords.
- **Security -** Today more than ever, security is a primary concern at airports and for airline staff office and passengers. Airport protection systems that use face recognition technology have been implemented at many airports around the world.
- **Image database investigations -** Searching image databases of licensed drivers, benefit recipients, missing children, immigrants and police bookings.
- **General identity verification -** Electoral registration, banking, electronic commerce, identifying newborns, national IDs, passports, employee IDs.
- **Surveillance -** Like security applications in public places, surveillance by face recognition systems has a low user satisfaction level, if not lower. Free lighting conditions, face orientations and other divisors all make the deployment of face recognition systems for large scale surveillance a challenging task.

4. CONCLUSION

This is a very basic facial recognition project with the help of which we can recognise abd identify faces, on the basis of facial features, to some extent. In this project, we also learned about algortithms such as Histogram Oriented Gradients (HOG) and YOLO for better and faster recognition. Facial recognition systems like this are being used in many commercial and non-comercial areas, and with the rise of technology, the use of facial recogniton systems are just going to increase.

5. FUTURE SCOPE

- The emergence of facial recognition indicates how important it will be in the near future. Even today, more than 50% of the smartphones that we own use facial recognition software for their security system.
- Not only has facial recognition enhanced security in smartphones, it has also helped enhance the security systems of various corporations and organisations etc. This has helped in security and surveillance (which is especially useful for national governments to track down rogue activities). Facial recognition is also a very effective tool that can help law enforcers recognize criminals.

Face recognition has received significant attention because of its numerous applications in access control, law enforcement, security, surveillance, Internet communication and computer entertainment. Although significant progress has been made, the state-of-the-art face recognition systems yield satisfactory performance only under controlled scenarios and they degrade significantly when confronted with real-world scenarios. The real-world scenarios have unconstrained conditions such as illumination and pose variations, occlusion and expressions. Thus, there remain plenty of challenges and opportunities ahead.