* **Group ID:** 40

Team Member: (Manish kumar, Pravin Chavhan, Prathamesh Shingare)

* **Project Title:** Deepfake Detection through Deep learning
* **Project Option:** Internal Project
* **Internal Guide:** Prof. Chetana Shravage Malvi
* **Technical Keywords:**
* DeepFake Detection
* Xception
* MobileNet
* Face Forenscis++
* Keras
* Tensor Flow
* **Problem Statement:**
* To implement Fake Video Detection System that detect malicious video using deep learning algorithms and Tensor Flow

**7.Abstract:**

* According to reports, almost two billion pictures are uploaded every day on the internet. This tremendous use of digital images has been followed by a rise of techniques to alter image contents, using editing software like Photoshop for instance.
* Fake videos and images created by deepFake techniques have become a great public issue recently.
* Nowadays several techniques for facial manipulation in videos have been successfully developed like FaceSwap, deepFake, etc. On one side, this technological advancement increase scope to new areas (e.g., movie making, visual effect, visual arts, etc.).
* On the other side, contradicting, it also increases the ease in the generation of video forgeries by malicious users. Therefore by using deep learning techniques we can detect the video is fake or not.
* In order to detect these malicious images, we are going to develop a system that can automatically detect and assess the integrity of digital visual media is therefore indispensable

**8.Introduction:**

* Photos and videos are frequently used as evidence in police investigations to resolve legal cases since they are considered to be reliable sources.
* Deepfake porn videos have already been used to blackmail female reporters and journalists**.**
* Deepfake porn videos have already been used to blackmail female reporters and journalists.
* Women's are not safe in india, the daily news of women molestation proves this right. Again in many cases women remain silent where they have been blackmailed, by fake photos as well that is why this project will help in securing every women's future.
* However, sophisticated technology increases the development of fake videos and photos that have potentially made these pieces of evidence unreliable.
* Fake videos and images created by deepfake techniques have been become a great public issue recently. So, predicting them becomes an important subject.
* A prediction that can be accurate and relied on is the need for resolve all forensic cases. It gets us ready for all the worst possible scenarios and hence we focus on understanding deep learning algorithms, the necessity apparatus as well as theory required to do so.
* **Goals and Objectives:**
* Objectives:

This project will detect early signs of tiredness before the driver has completely lost all attention and will tell the motorist that they are no longer capable of driving safely.

* Goals:

The primary goal of this project is Deepfakes uses deep learning

technology to manipulate images and vedios of a person that

humans cannot differentiate them from the real one.

* **Names of Conferences/Journals where papers can be published:**

IEEE – Publishing: <https://www.ieee.org/conferences/publishing/index>.

IRJET- Journal Publishing: <https://www.irjet.net/>

**Review** [**HYPERLINK "of%20Conference/Journal"of HYPERLINK "of%20Conference/Journal" HYPERLINK "of%20Conference/Journal"Conference/Journal**](of%20Conference/Journal) **Papers supporting Project idea:**

* A Heterogeneous Feature Ensemble Learning based Deepfake Detection Method

**Authors**:-Jinxin Zhang,Ke Chang,Giuliano Sovernigo,Xiadong Lin

**Link**:https://ieeexplore.ieee.org/xpl/conhome/9837954/proceeding

**Brief**:- In the proposed work, an emotion detection method based on Support Vector Machines (SVM) has been implemented using facial expressions

* Driver Fatigue Detection Based on Convolutional Neural Network using EM-CNN

**Authors**:- Zuopeng Zhao, Nana Zhou , Lan Zhang, Hualin Yan, Yi Xu, and Zhongxin Zhang

**Link**:- <https://www.hindawi.com/journals/cin/2020/7251280/>

**Brief**:- A convolutional neural network, named EM-CNN, is proposed to detect the states of the eyes and mouth from the ROI images. The proposed algorithm EM-CNN outperforms other CNN-based methods, i.e., AlexNet, VGG-16, GoogLeNet, and ResNet50, showing accuracy and sensitivity rates of 93.623% and 93.643%, respectively.

* Driver Drowsiness Detection by Applying Deep Learning Techniques to Sequences of Images

**Authors**:- Elena Magán , M. Paz Sesmero , Juan Manuel Alonso-Weber and Araceli Sanchis

**Link**:- <https://www.mdpi.com/2076-3417/12/3/1145>

**Brief**:- The first alternative uses a recurrent and convolutional neural network, while the second

one uses deep learning techniques to extract numeric features from images, which are introduced into a fuzzy logic-based system afterwards.

* Deep Learning for Eye Blink Detection Implemented at the Edge

**Authors**:- Alexis Arcaya Jordan, Alain Pegatoquet , Andrea Castagnetti , Julien Raybaut , Pierre Le Coz Universit´e Cˆote d’Azur, CNRS, LEAT, France, Ellcie-Healthy, France

**Link**:- <https://ieeexplore.ieee.org/document/9216020>

**Brief**:- This innovative solution is compared with a more traditional method, based on a detection threshold mechanism. The performance, battery lifetime and memory footprint of both solutions are assessed for embedded implementation in connected glasses. The results demonstrate that CNN outperforms the accuracy obtained by the threshold based algorithm by more than 7%.

* Estimation of Driver Vigilance Status using Real-Time Facial Expression and Deep Learning

**Authors**:- Reza Tamanani , Radu Muresan , and Arafat Al-Dweik

**Link**:- <https://ieeexplore.ieee.org/document/9394715>

**Brief**:- A new driver’s vigilance detection system based on deep learning is proposed based on facial region diagnosis using the Haar-cascade method and convolutional neural network for drowsiness detection.

* Driver Drowsiness Detection Model using Convolutional Neural Network Techniques for Android Application

**Authors**:- Rateb Jabbar , Mohammed Shinoy , Mohamed Kharbeche , Khalifa Al-Khalifa , Moez Krichen , Kamel Barkaoui

**Link**:- <https://ieeexplore.ieee.org/abstract/document/9089484>

**Brief**:- The proposed CNN based model can be used to build a real-time driver drowsiness detection system for embedded systems and Android devices with high accuracy and ease of use.

* **Plan of Project Execution:**

