## Please, fill in information about your team and project.

Team number: 1

Team name: “404 - Name not found”

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Topic: Handwritten Character Recognition

Description of the projects: Describe the task. What is the goal? Will you use some existing data? What existing tools do you want to use? How will you evaluate the results (e.g. using some quantitative metric, by testing with users, …)? (~1000 characters)

Team number: 2

Team name: Gangsta

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Topic: Facial Recognition System

Description of the projects:

Our proposed goal is to create a working facial recognition model for taking class attendance. This is done to curb issues such as signing on behalf of peers, and generally automating the process. This way, only the physical presence of the student will make their attendance count. The system will make use of an algorithm that will make use of facial keypoint localization to identify the students based on their existing pictures on the dataset. We plan on gathering the necessary data from our (hopefully) collaborating classmates and group members. The said model will be able to take input from a connected camera and produce output it in real time. Testing will be done as a percentage of correctly identified faces from the dataset.

Team number: 3

Team name: Spaghetti pomodoro

Contact:

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Topic: On board driver fatigue recognition system  
Description of the projects: Driver fatigue is one of the most common reasons why many accidents occur on the roads nowadays. To prevent this we want to create a system which detects driver fatigue while driving. To achieve this, an onboard camera will be mounted behind the steering wheel of the driver and monitor him while driving. We will use existing dataset (DLib Dataset - <https://github.com/davisking/dlib-models>) to train neural network on guessing the coordinates of the facial landmarks - mainly the eyes of the driver. By computing the area of an estimated eye bounding boxes for each eye we might be able to determine whether the driver is focusing on the road or even falling asleep. We are going to use the Pytorch framework for training neural network and OpenCV for image processing. For finding the face bounding box out of an image a OpenCV Haar-cascade classifier might be used. Results of the project will be tested directly in the car on a road in a safe enclosed environment.

What existing tools do you want to use? How will you evaluate the results (e.g. using some quantitative metric, by testing with users, …)? (~1000 characters)

Team number: 4

Team name: Brnology

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Topic: Hand gesture recognition for improving online class efficiency

Description of the projects: **Mediapipe, LSTM model**

With the arrival of Covid-19, Most of the students are taking online classes using programs such as Zoom and Google Meet. For that reason, It is not easy to meet the needs of students. In order to better accommodate their needs,Our team is trying to solve this through hand gesture recognition. Hand gestures will be used to meet the needs of the students in class. For example, if a student asks a question, can’t hear the voice well, or the ppt is difficult to read.Because we plan to recognize students' hands through real-time images, learning will be conducted using webcams. The tools we used are Mediapipe, Numpy and OpenCV. By using this technology, it is expected that students will be able to create a high-quality class atmosphere by increasing their concentration.

Team number: 5

Team name: Kitty

Topic: Heart Disease Prediction

Contact:

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Description of the projects:

According to the World Health Organization Cardiovascular diseases (CVDs) are the leading cause of death globally. An estimated 17.9 million people died from CVDs in 2019, representing 32% of all global deaths. Of these deaths, 85% were due to heart attack and stroke. With this finding there is a need to build a solution that predicts possible heart disease among patients. The project is aimed at predicting whether a person has heart disease or not. A useful application of this project will be early detection of heart disease and prevent mortality among patients. The dataset to be used is a UCI Kaggle dataset that contains 14 columns and 920 rows(<https://www.kaggle.com/datasets/redwankarimsony/heart-disease-data>).The dataset will be split into two datasets following the 70-30 rule for training and testing.The project will be implemented using different models but will first be implemented using logistic regression to ensure we get affected or not affected.The models will only be trained on one heart disease. To evaluate the correctness of the model we will use accuracy percentages of different models and select the most accurate model.

Team number: 6

Team name: Mission I’m possible

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Topic: Autonomous face mosaic system

Description of the projects: As the personal media market becomes active, video mosaic service technology for protecting the portrait rights of the general public in this project is increasingly needed due to the surge in single media providers editing and uploading videos. In "Vlog," which contains his daily life, the faces of many people except his face are filmed, and it is cumbersome to blur them out. If a service that automatically mosaic processes is used, mosaic processing can be performed more conveniently than the existing method.

Team number: 7

Team name: Mozart

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Topic: Music Genres Classification

Description of the projects: Our project's goal is to classify songs into music genres. A useful application of this project could be the recommendation of songs based on the user's favorite genres. The dataset that will be used is GITZAN. Using the spectrogram and the wavelet transformation of the audio, we will train a Neural Network to recognize the genre of each song. The results will be evaluated using the accuracy and the logarithmic loss metrics.

Team number: 8

Team name: Brno ting ting

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Topic: Distinguish COVID-19 by coughing

In the case of COVID-19 confirmed patients, the method of making sounds changes even if they are asymptomatic. Among the symptoms of COVID-19, fever and cough are symptoms that can be identified by exposure to the outside. Fever can be confirmed through the heat detection camera, but the cough only knows that it makes a sound, and it is not known what kind of cough it is. We are planning to determine whether we are infected with COVID-19 through coughing by using the open voice data set "Audio Set," which is used for research on Google and YouTube. With COVID-19 continuously spreading through this project, it is expected that the use of cough recognition cameras in public places and large-scale facilities will be of great help in quarantine and early detection of infectious diseases.