Facial Emotion Detection Agent

In Real Time

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Facial Emotion Detection Agent

Agendas

- Project Objectives
- Data
- Employed Algorithm
- Agent Design
- Experiments
- Final Results Best Result

Facial Emotion Detection Agent

Objectives

- The Main objective is to have a good agent that pPredict Facial Expression Recognition high accuracy and low time.

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Data

- The Face data we used for training is collected from **7 participant**
- The participant was instructed to express the **7 categories** of emotion from our data-set design.
- The data is then converted to **48x48** pixel of grayscale images
- The labels for each data include ：
- 0=Angry, 1=Disgust, 2=Fear, 3=Happy, 4=Sad, 5=Surprise, 6=Neutral.

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Employed Algorithm : Feature filtering

- For Detecting face while gathering data/predicting emotion we used openCV's library
  - Specifically : **CascadeClassifier**
- The training dataset for face detection is :
    - **'haaarcascade_frontalface_default.xml'**

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Employed Algorithm : Prediction Model

- We Used GoogleNet V2 | From Keras
- The General features of our model is as follow :
  - The models are created based on **sequential** class.
  - We **max-pooling(2 x 2)** to reduce the dimensions of the data
  - The activation function used is **relu**

Employed Algorithm : Compile and train the model

- We use
  - “Adam” optimizer
  - Accuracy : as a metric to evaluate the model
  - A **loss** function (cross-entropy)

Employed Algorithm : Emotion Prediction

- We use **pc camera** as source of streams of video to capture frames.
- We use openCV (**CascadeClassifier**) to extract facial features
- The extracted features are converted to numpy array of grayscale
- Then this array of grayscale data is given to our model for prediction (CV2)