Emotional analysis on real time

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Abstract

In this paper we will discuss about the Facial expression are an important means of communication. Person behavior is managed by their face. In social media like video chatting our emotions are tracked everywhere. This is possible because of Artificial Intelligence. Computer vision plays an important role. Face recognition does this. Expressions like happy, sad, fear, anger and surprise are also detected by them.

Keywords: Artificial Intelligence, Computer vision, Face recognition

Introduction

Before emotions identification it's important to identify the key features of human behavior. The behavior include the human facial expressions, body language and gestures. Humans have the ability to recognize faces same computer can do now. The emotional analysis is the key of affective computing. Affective means emotions and computing means to measure. Analyzing the emotions and sentiments of real time human can measure the well-being of that person.

This paper is divided into three parts:-

1. Facial Detection

It locates the face of the person.

2. Facial Recognition

It compares many faces to match the correct one.

3. Emotion Detection

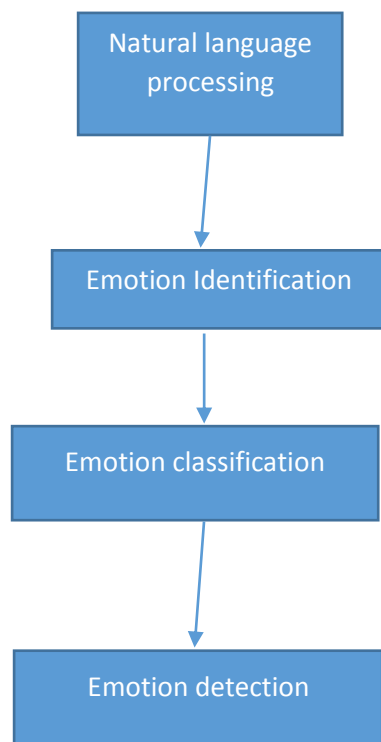Detecting the face is happy, angry, sad, neutral, surprise or fear.

Fig 1.Steps in emotion analysis

Working of emotional analysis is based on following terms

Its working is as follows:

- Keras
  It is a high level API developed by Google. It is used for implementing artificial neural networks. It is open source library. It provides python interface.
- CV2

  It is a open source library in Python for solving computer vision problems. It is used to perform face detection task.
- Numpy

  It is a python library used for arrays working. It stands for Numerical Python.It is open source project.

- CascadeClassifier

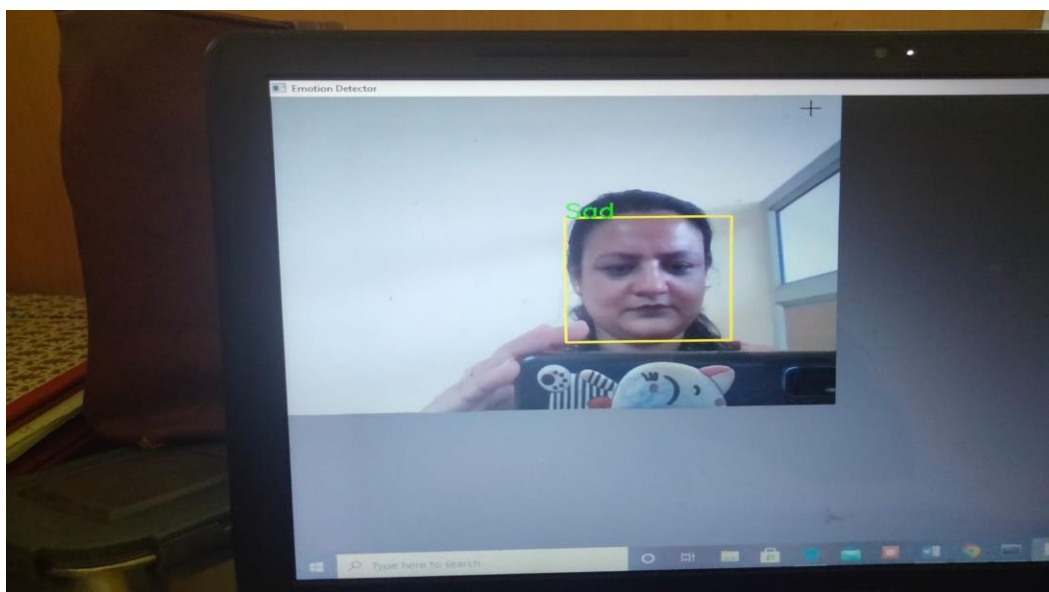This classifies negative input (non face) to discard while positive input (face like regions)for computation.
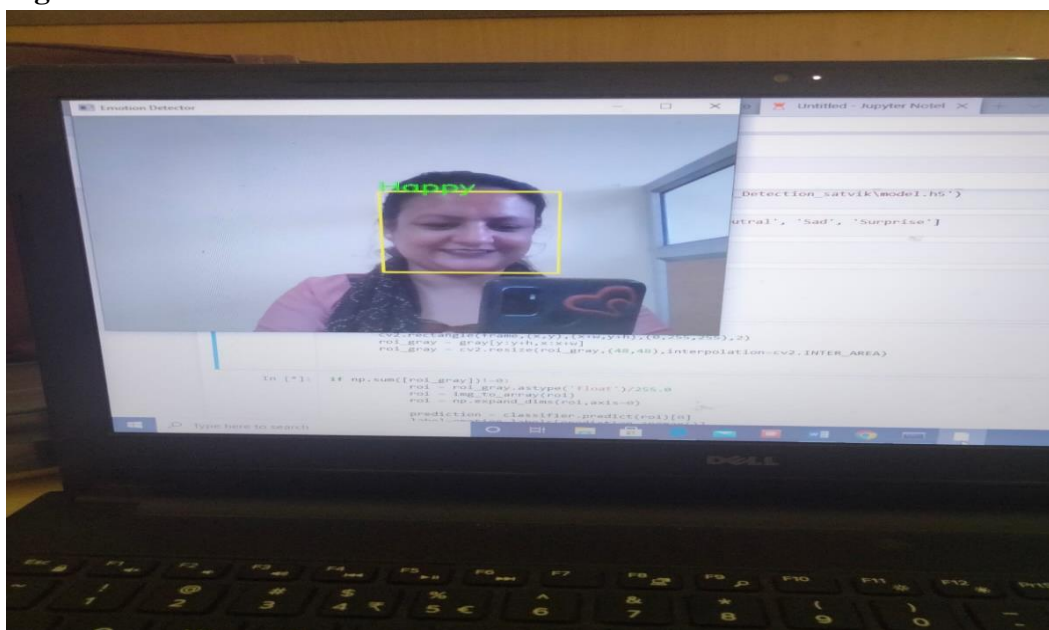
Fig 2: Sad Emotion Detection

Fig 3: Happy Emotion Detection

```
      ┌─────────────────┐
      │     Camera      │
      └─────────────────┘
               │
               ▼
      ┌─────────────────┐
      │      Input      │
      └─────────────────┘
               │
               ▼
      ┌─────────────────┐
      │  Face Detection │
      └─────────────────┘
               │
               ▼
      ┌───────────────────┐
      │Features recognition│
      └───────────────────┘
               │
               ▼
      ┌─────────────────┐
      │ Classification  │
      └─────────────────┘
               │
               ▼
      ┌─────────────────┐
      │     Output      │
      └─────────────────┘
```
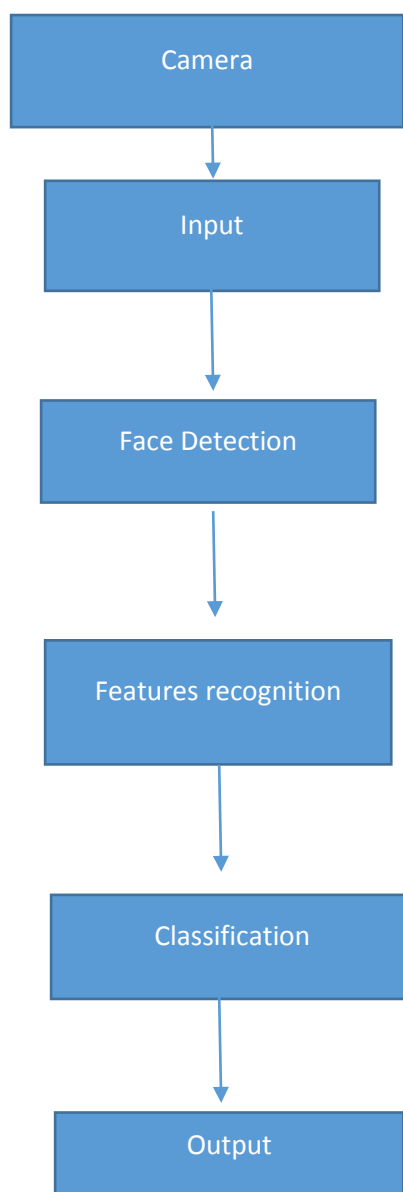
Fig 4: Emotion Detection by Camera

Conclusion

In this paper a model is made to detect the real time emotional analysis. It opens the camera and take input. Then it detects face on the screen. It even detects the features like happy, sad, anger etc. Finally it sends the output on the screen. Emotion detection is the means of distinct human emotions like happy, sad or depressed. Emotion detection or emotion analysis and emotion identification can be used interchangeably.

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