

**Project Title:** Animojis (Animation of facial expressions in 2D)

**The team members:**

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**Project Objective:**

The objective of this project is to create an animated 2D model of a person's face that copies and replicates the facial expressions the person makes in real-time. This is the same principle behind Apple's Animojis.

**Technologies used:**

The project is based on the Python programming language and some of its libraries such as:

Dlib, OpenCV and Tkinter.

Dlib is a cross-platform software library that is used in this case for the implementation of Facial identification.

OpenCV is an open-source library which is aimed at computer vision and it is used in the program to trigger the webcam which used to capture and detect the face.

Tkinter is a Python binding to the Tk GUI toolkit. It is the standard Python interface to the Tk GUI toolkit and is Python's *de-facto* standard GUI. It is used as the GUI for the program on which the projected face is displayed.

**Methodology:**

**Step 1: Webcam collection of image/video stream**

We use OpenCV to activate the webcam which is used to detect the face and collect the streamed image/video for processing.

**Step 2: Mapping facial data points for the detection process**

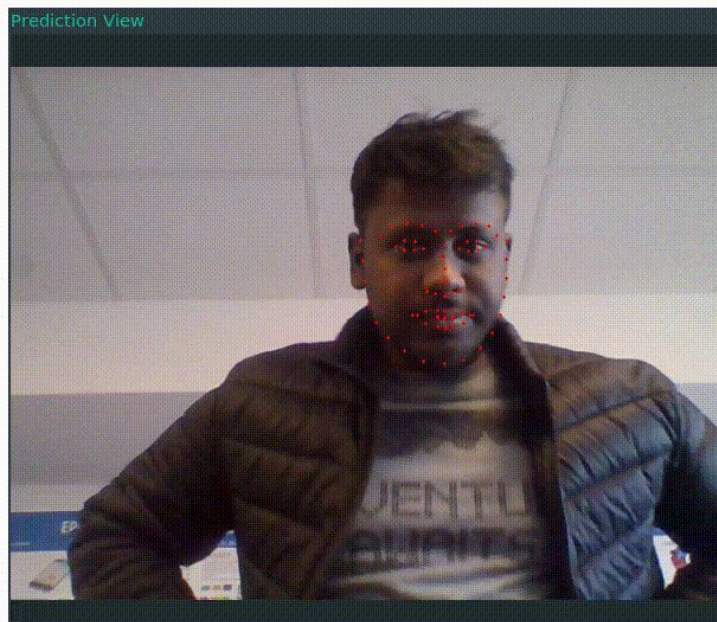
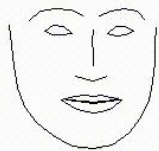
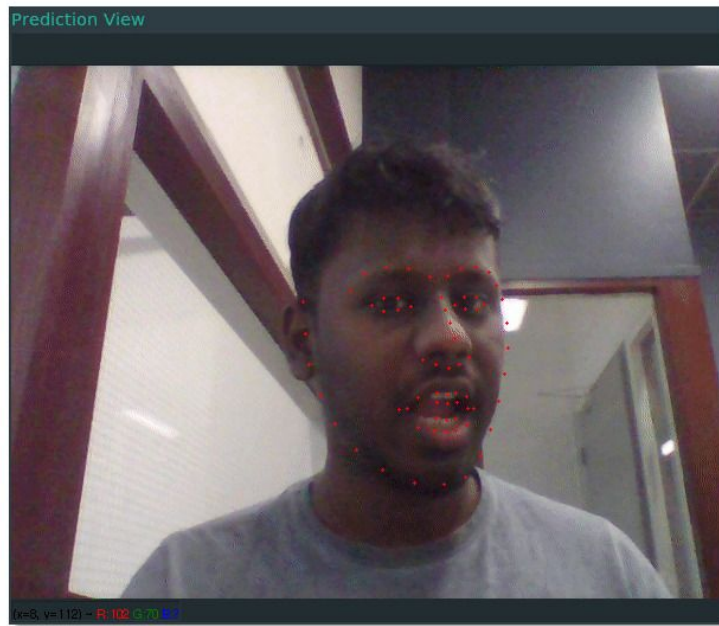
Leverage Dlib's built-in face detection algorithm along with the iBUG 300-W dataset that is trained to detect 68 data points to recognize faces.

**Step 3: Transferring facial expressions to a 2D canvas**

After the data points have been successfully mapped, we extract this data from the and paint it over the Tkinter canvas. The 2D display on the canvas is now able to mimic facial expressions.

**Links to the code:** <https://github.com/VaZark/animoji-on-pc>

## Prototype Screenshot



## References

Facial Landmark detection (CLM-open)

- <https://www.learnopencv.com/facial-landmark-detection/>
- <https://github.com/spmallick/dfib>

Graphical Libraries (graphics.py & tkinter)

- [https://www.youtube.com/watch?v=R39vTAj1u\\_8](https://www.youtube.com/watch?v=R39vTAj1u_8)
- <https://medium.com/quick-code/3d-graphics-using-the-python-standard-library-99914447760c>