

## **Aim:**

The aim of this project is to develop an API for playing a video, go to next or previous and to go to any arbitrary frame requested. We are going to use OpenCV python and pyAV modules.

## **Requirements:**

- a) Python 3.6.2
- b) wxpython 4.0.3
- c) openCV 3.4.2 (opencv-python name to be used in pip command)
- d) numpy 1.15.4
- e) pyAV 6.2.0
- f) You need to install these specific version of the modules.
- g) You can use “pip install wxpython==4.0.3” command to install specific versions.

## **Naming Convention:**

- a) All class names should start with UPPERCASE and use underscore as required.
- b) All function names should start with lowercase and use underscore as required.
  - a. Start a function name with underscore if it's private
- c) All variable names should start with lowercase and use underscore as required.
  - a. Start a variable name with underscore if it's private
- d) All global names should be in UPPERCASE and use underscore as required.
- e) Comment as much as possible

## **Function Required in API:**

`iter_frames(self)`: This function take no args except self and returns two variables a numpy image and bitmap image. A numpy image as the name suggests is an image in numpy array form a bitmap image is the same as numpy image but in wxpython bitmap form. This function whenever called returns the next frame in the video in the above mentioned images otherwise return None.

`get_org_frame_width(self)`: This function take no args except self and returns image width.

`get_org_frame_height(self)`: This function take no args except self and returns image height.

`get_frame_rate(self)`: This function take no args except self and returns frame rate of the video.

`get_last_frame(self)`: we will implement it later.

`goto_frame(self, target_frame_num, next_frame = False)`: This function takes two args namely `target_frame_num` and `next_frame`. If `next_frame` is false then we will need to go to `trager_frame_num`. If `next_frame` has a number then go to next frame. See the attached code for proper functioning.

## **Development Phases and Instructions:**

Phase 01: Develop the API using OpenCV first.

Limitations of OpenCV: You can't use set function of the `opencv` module to go to specific frame number as it is buggy. You need to iterate to go to a specific frame number.

Phase 02: Develop the API using `pyAV`.