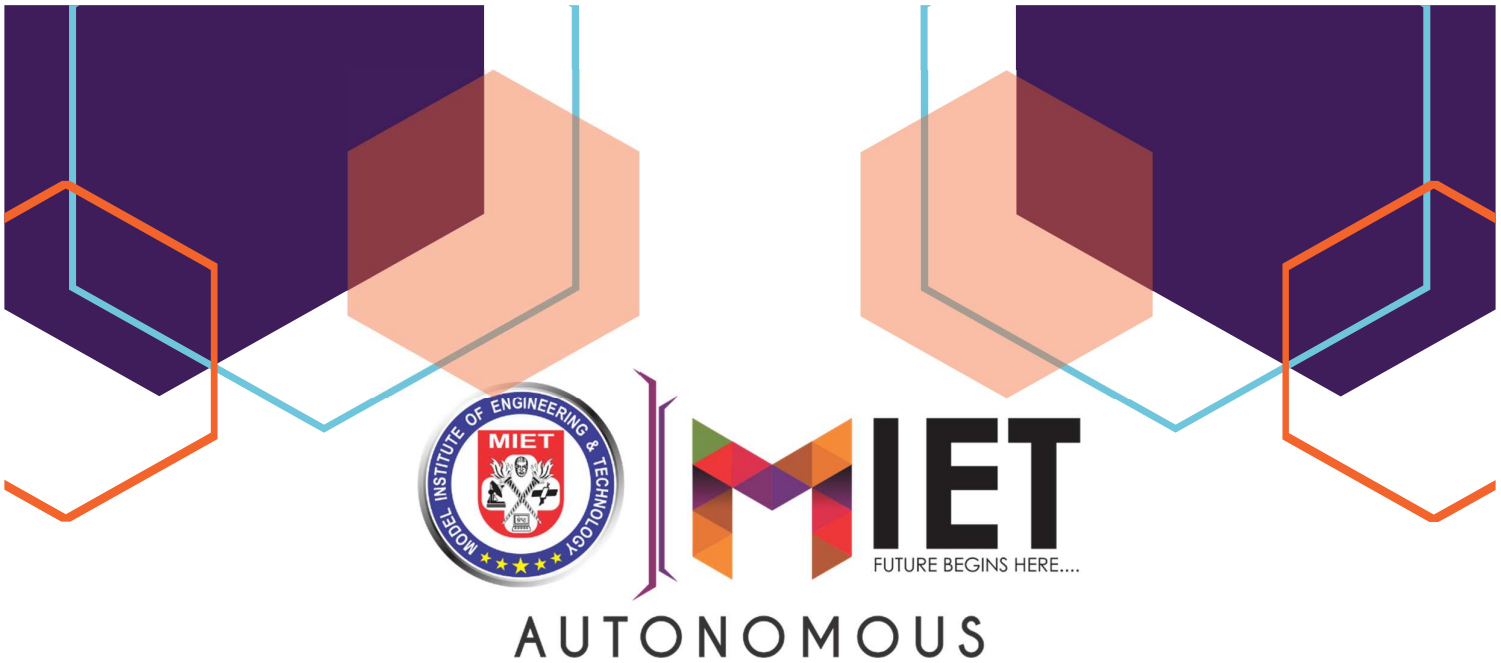
PYTHON LAB PROJECT REPORT

ON

BUILDING A CAMERA APP USING PYTHON

SUBMITTED BY

Khushboo Raina(2020A1r004)
Sparsh Sudan(2020A1R007)
Aryan Verma(2020A1r031)
Dhruv Gupta(2020A1r032)
Muskan Raina(2020A1r033)



SUBMITTED TO

CSE DEPARTMENT
Model Institute of Engineering and Technology (Autonomous)
Jammu, India
2022

CONTENTS

INTRODUCTION TO PROJECT

How can we access camera in PC's or in those laptops whose webcam is damaged?

The answer to this question is this camera app.

Through this camera app a user can access camera in his/her desktop or laptop.

This app operates in 3 modes:

1. Whether user wants to use WEBCAM as a camera.
2. Whether user wants to use his/her PHONE camera.
3. Whether user wants to BROWSE images.

Whenever user will run this app he/she will be given a choice whether to access camera of phone or he/she wants to use this app.

This app also provides user to save the captured images in required destination.

Through this app user can also browse the saved images in his/her desktop.

This app also provides user to capture or browse images in two filter i.e. one in rgb that is colored filter and second one in gray filter.

INTRODUCTION TO IDE USED

What an IDE is?

An integrated development environment is a software application that provides comprehensive facilities to computer programmers for software development. An IDE normally consists of at least a source code editor, build automation tools and a debugger.

IDE Used: - VS Code

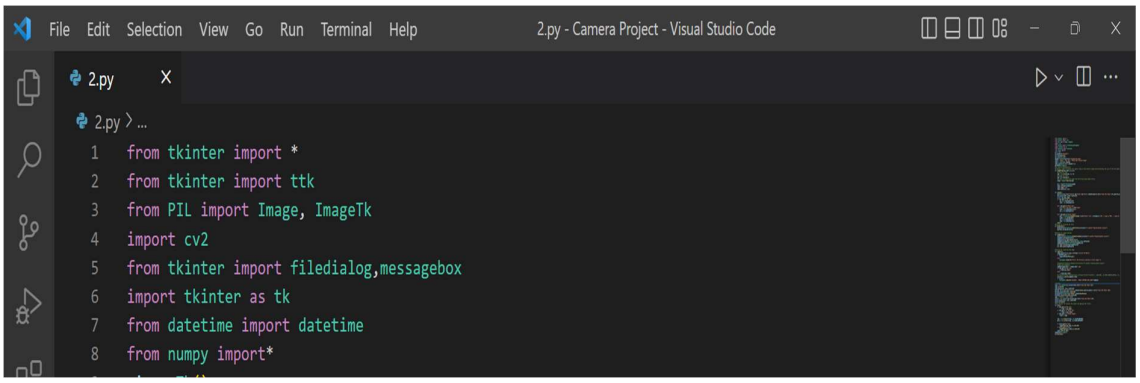
Visual Studio Code, also commonly referred to as VS Code, is a source-code editor made by Microsoft with the Electron Framework, for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git. Users can change the theme, keyboard shortcuts, preferences, and install extensions that add additional functionality.

TECH-STACK USED

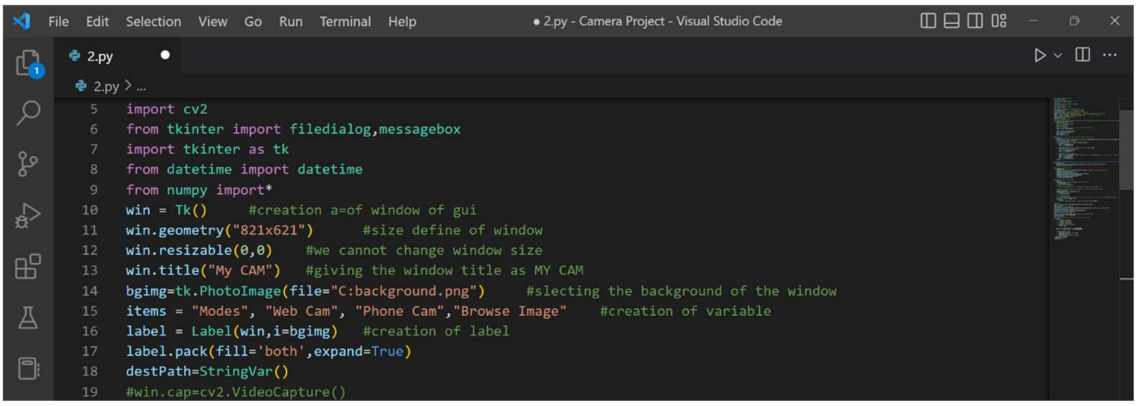
For building this camera app we have used:

- Basic Python
- IP Webcam mobile application
  - An internet protocol (IP) camera lets you monitor your home or business using software that connects it directly to the internet. Unlike a webcam, it doesn't need a computer to transmit video online.
- Python Libraries and Modules
  - CV2
    - Open CV is a cross-platform library using which we can develop real-time computer vision application.
  - Tkinter
    - Tkinter is the standard GUI library for Python. Python when combined with Tkinter provides a fast and easy way to create GUI applications.
  - PIL
    - Python Imaging Library support opening, manipulating, and saving many different image file formats.
  - Date Time
    - This library supplies classes for manipulating dates and times.

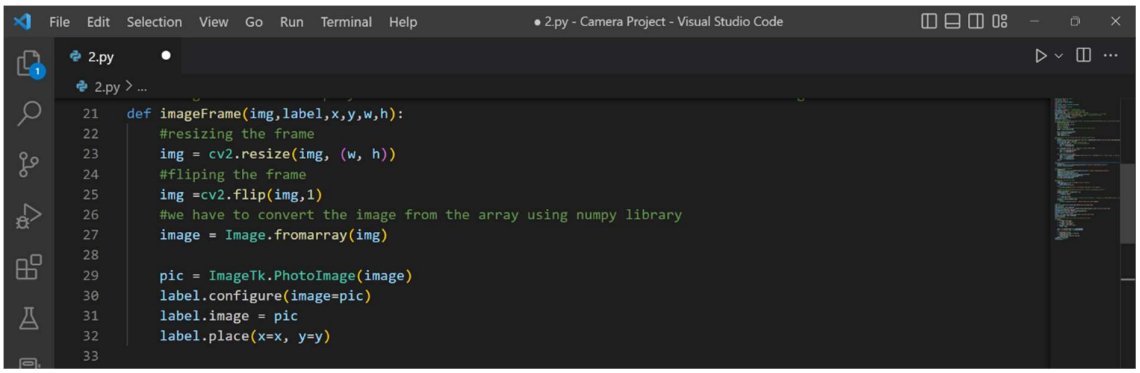
PROJECT IMPLEMENTATION



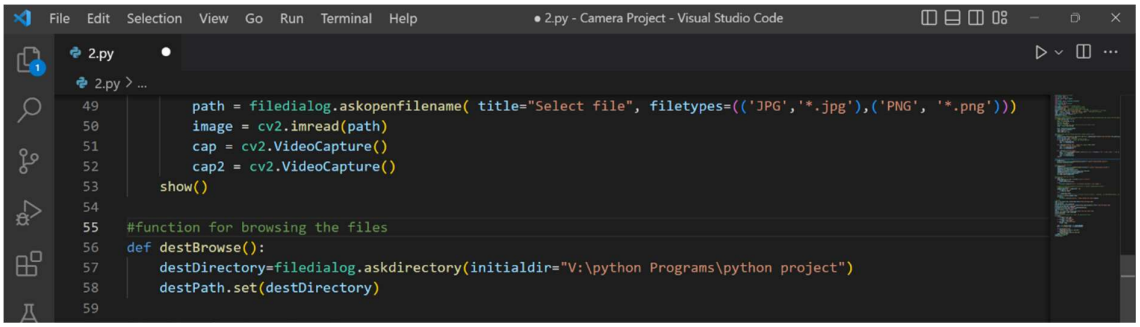
In lines 1 - 8 we are just importing the libraries.



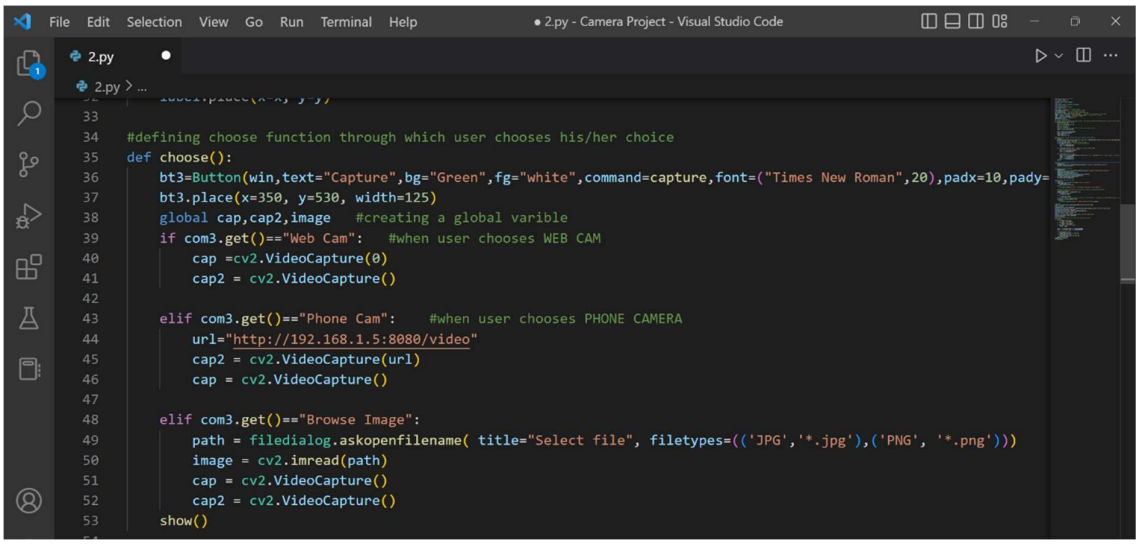
From lines 10 – 18 we are making a tkinter window and assigning its dimensions and title to it.



From line 21 – 32 we are defining the frame size of image.

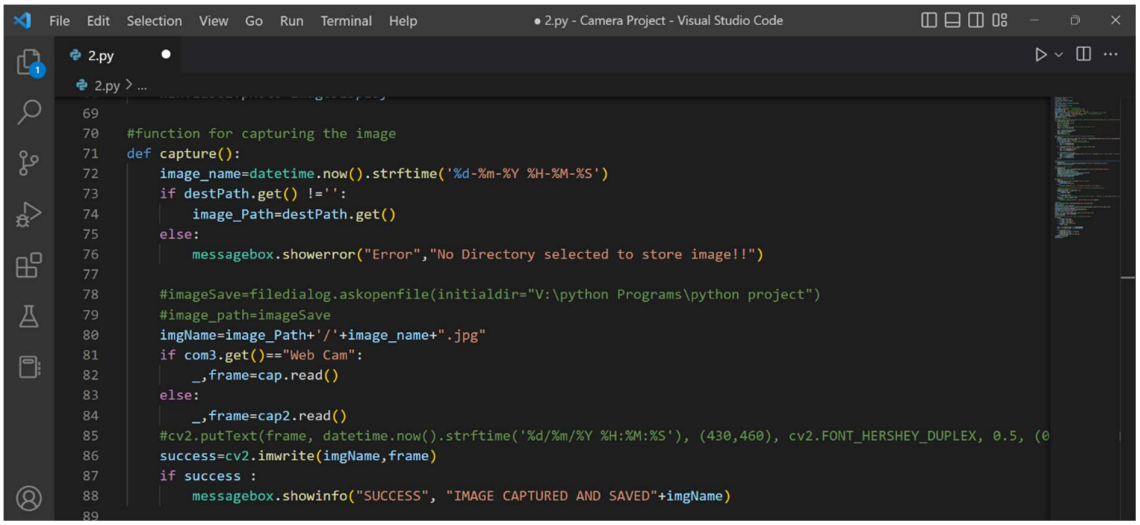


From lines 56 – 58 we are defining destination browse function through which user can choose the required destination of saving image.

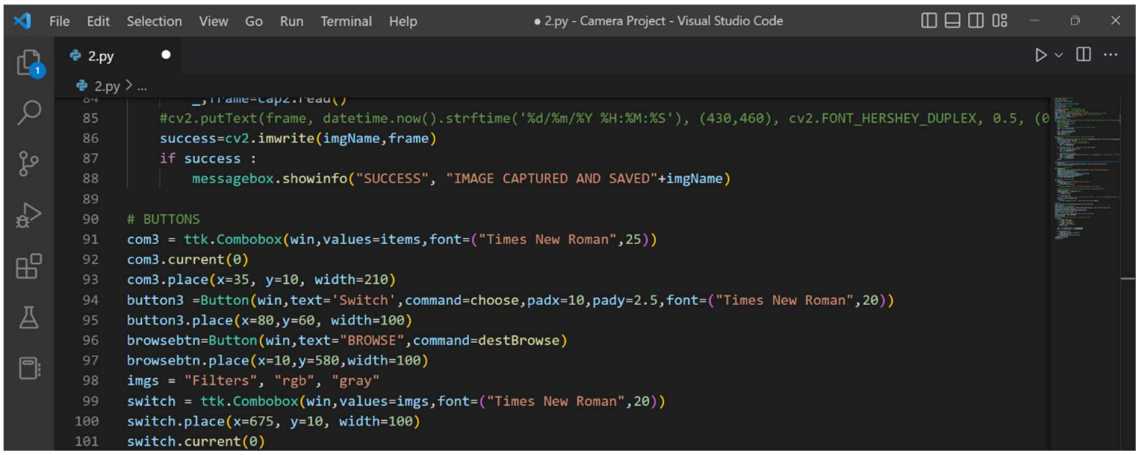


From lines 35 – 53 we are defining choose function by which user can switch between the options available to him/her.

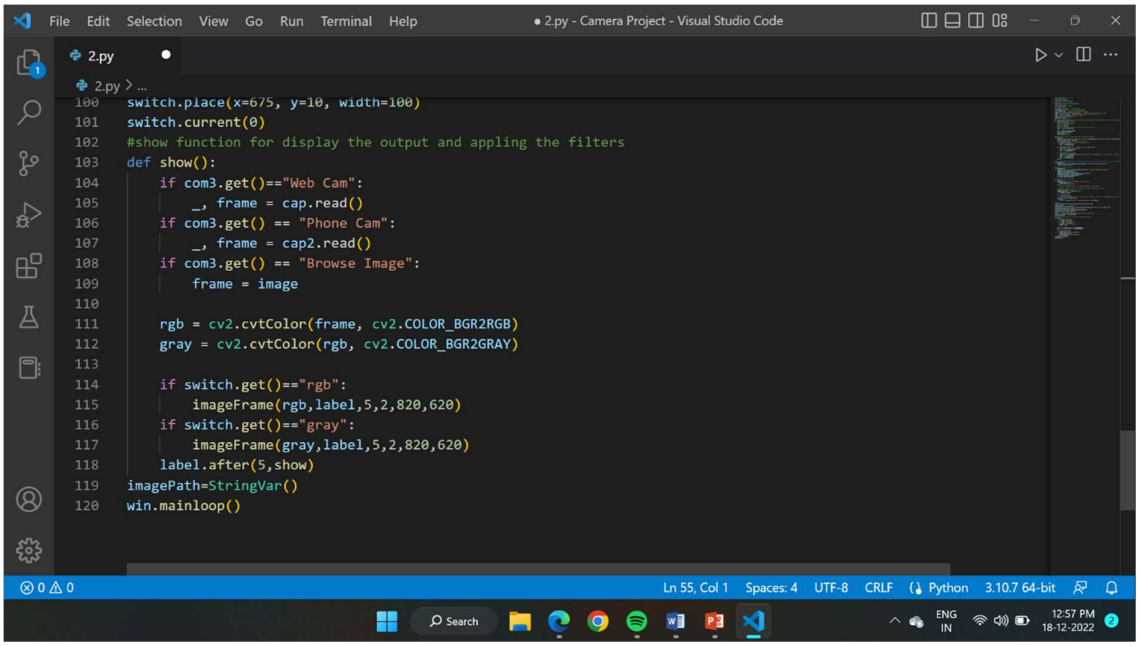
From lines 61 – 68 we are defining the image browse function by which user can browse the images in his pc or laptop.



From lines 71 - 88 we are defining the capture function through which user can capture images.



From lines 91 – 101 we have created button for Tkinter window by which user access different functions.



From lines 103 – 118 we are defining the show function to display outputs and also applying filters in output.

REFERENCES

1. https://www.youtube.com/watch?v=BoIJhenSSSU

2. https://github.com/pythonpool/small-projects/blob/main/camera.py

3. https://thecleverprogrammer.com/2021/01/05/use-phone-camera-with-python/