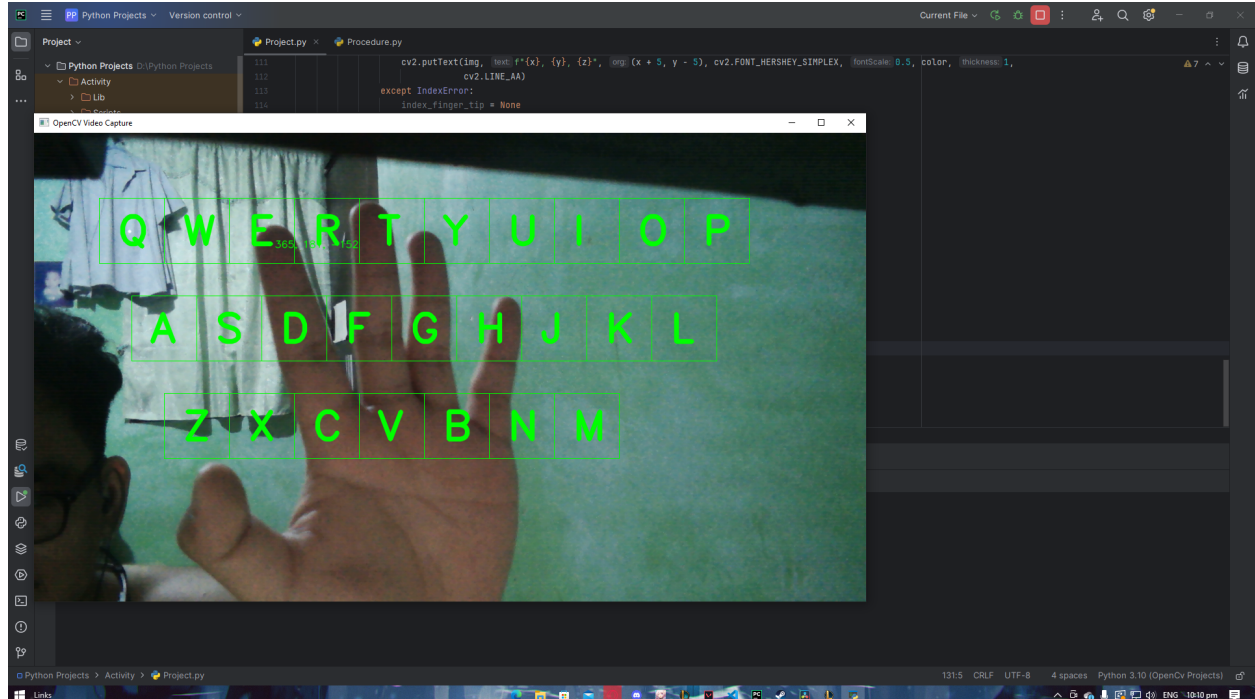# A Computer Vision-Based Keyboard Interface Using OpenCV

Deliverables:

**Problem**: There's a huge demand in building pc's and many people can't afford or don't have enough money to buy a keyboard and if they do buy cheaper ones it'll break easily.

**Solution**: We created a keyboard with just using your cameras at home which can also be used for virtual keyboards in the future and it is also eco-friendly.

- Methods you plan to use.
  - Edge Detection
  - Hand recognition and Detection
    - OpenCv ()
    - Mediapipe ()
    - Python GUI library

- Progress Report.



Note: In this image, there is no text box yet; it only shows the coordinates of the hand and its placement.

Note: This image shows the virtual keyboard which consists of alphanumeric keys that only includes the alphabets.

```python
#PYTHON BLYAAAAAAAAAAT
import cv2
import mediapipe as mp
import pyautogui

FRAME_WIDTH = 1280
FRAME_HEIGHT = 720

THUMB_TIP = 4
INDEX_FINGER_TIP = 8
MIDDLE_FINGER_TIP = 12
RING_FINGER_TIP = 16

Z_THRESHOLD_PRESS = -200

# Define the basic keyboard layout
VK = {
    'Q': {'x': 100, 'y': 100, 'w': 100, 'h': 100},
    'W': {'x': 200, 'y': 100, 'w': 100, 'h': 100},
    'E': {'x': 300, 'y': 100, 'w': 100, 'h': 100},
```

```
    'R': {'x': 400, 'y': 100, 'w': 100, 'h': 100},
    'T': {'x': 500, 'y': 100, 'w': 100, 'h': 100},
    'Y': {'x': 600, 'y': 100, 'w': 100, 'h': 100},
    'U': {'x': 700, 'y': 100, 'w': 100, 'h': 100},
    'I': {'x': 800, 'y': 100, 'w': 100, 'h': 100},
    'O': {'x': 900, 'y': 100, 'w': 100, 'h': 100},
    'P': {'x': 1000, 'y': 100, 'w': 100, 'h': 100},
    'A': {'x': 150, 'y': 250, 'w': 100, 'h': 100},
    'S': {'x': 250, 'y': 250, 'w': 100, 'h': 100},
    'D': {'x': 350, 'y': 250, 'w': 100, 'h': 100},
    'F': {'x': 450, 'y': 250, 'w': 100, 'h': 100},
    'G': {'x': 550, 'y': 250, 'w': 100, 'h': 100},
    'H': {'x': 650, 'y': 250, 'w': 100, 'h': 100},
    'J': {'x': 750, 'y': 250, 'w': 100, 'h': 100},
    'K': {'x': 850, 'y': 250, 'w': 100, 'h': 100},
    'L': {'x': 950, 'y': 250, 'w': 100, 'h': 100},
    'Z': {'x': 200, 'y': 400, 'w': 100, 'h': 100},
    'X': {'x': 300, 'y': 400, 'w': 100, 'h': 100},
    'C': {'x': 400, 'y': 400, 'w': 100, 'h': 100},
    'V': {'x': 500, 'y': 400, 'w': 100, 'h': 100},
    'B': {'x': 600, 'y': 400, 'w': 100, 'h': 100},
    'N': {'x': 700, 'y': 400, 'w': 100, 'h': 100},
    'M': {'x': 800, 'y': 400, 'w': 100, 'h': 100},
}
#BIMBIMBAMBAM
```