According to the study, nearly 1 out of 50 people live with paralysis, approximately 5.4 million people, and most can only change their facial expressions. These people live a boring life because of not direct interaction with computers and the internet or no particular activity, making them happy in their spare time. Hands-free text entry with an on-screen virtual keyboard has been long possible using eye-tracking technology, gaze here serves as a means of pointing, and key selection is typically made by fixing the gaze on a key. It is also difficult for a person to type with it because it needs more focus, and it also requires a good quality camera or eye tracking device that can detect its eyeball movement. So, we have decided to make a system so that they can communicate with the world. The idea is to create a system like a virtual keyboard controlled by a disabled person's facial expression and gestures. The software will be much intelligent to detect and recognize a person's facial expressions using a camera. After recognizing their expression, which is predefined against keys, the software will be used to type on a screen and play games. This may take less time to type on a screen and not require any particular device or camera to detect the expressions. We can be done with a computer Webcam. e.g., for writing something through usage of alphanumeric keys, One can use their mouth, both eyes, and for arrow keys movement, one can use their head and other actions for some specific keys, etc. These gestures or expressions are detected through a webcam on a laptop or desktop computer after detecting actions user can write words and play specific games

Hands-free text entry with an on-screen virtual keyboard has been long possible using eye-tracking technology: gaze here serves as a mean of pointing and key selection is typically done by dwelling the gaze on a key for about 450-1000 ms [11,1]. To speed up the interaction, short dwell times can be used; however, this may lead to so called Midas touch problem [10] when everything a user is looking at becomes selected. Thus, some interactive elements may become unintentionally selected when a user, e.g. investigates the interface. Inherit usability problems of voluntary gaze input for controldemanding tasks [9,10], high cost of commercial eye trackers, insufficient accuracy of cheap solutions and other issues, e.g. need for eye tracker (re)calibration and restriction of head movements have led to search for alternative yet accurate, fast and convenient hands-free pointing and selection methods.

Project overview:

Our idea consist of two parts. One of these is a computer or laptop with camera which can detect the facial expression of person on the basis of specific keys on a virtual keyboard which we made. Through this one will become able to write on a screen and play games. Second is our special virtual keyboard which we design for paralysed people, must be install on thier PC's or laptop it to perform functions. Our purpose of designing this keyboard is that it saves time which is waste on dwell of gazing for typing and it provides satisfaction to that people beacuse it is very effcient and easy to use.

Scope:

Our purpose is to target the audience which is basically paralyse and people without hands. We target this audience because there is no proper way of communication for them. Few years back, an eye tracking technology come to serve these kind of people. This is some how good for controlling cursor on screen but typing is too difficult with it for common person because this technology uses on screen virtual keyboard which require to fix the gaze for some period of time on specific key using cursor controlled by eyeball if it reaches to that key, then blink the eye to type it on screen. if there is a little movement in eyeball after targeting a key then the cursor will move from its target position and person again has to set the gaze on specific key. It also require a high defination camera to detect the eyeball which is not possible to have for common person.

Aim and the objective of this project is to provide the user with satisfaction, efficiency, reliability, less time consumption and cost effective.

We will develop a virtual keyboard with small interface to check whether it type on screen after detecting the expressions. We will test all the algorithms that are already been

introduced for the facial detection and recognition problem. After testing all the

algorithms, our goal is to find a way to get better results. when we will finalize

our model, the objective is to make a virtual keyboard in Python and by using best

algorithm the objective is to write on keyboard by changing the facial expressions.