HOLOGRAPHIC KEYBOARD AND MOUSE

Objective :-

(1) Build a camera based mouse by detecting the movement of the hand by using IR source to illuminate the hand of the user and detect the movement using IR camera. The IR source will be attached on the side of the laptop and the camera will be attached on the back of the laptop. We will use PYTHON to implement these image processing stuff.

- Cursor movement will be controlled by movement of hand of the user on the desk or a flat surface.
- User will be able to left click and right click using index and middle finger respectively.

  Additional Features (if time permits) :-
  - Move In and out the thumb and index finger to perform zoom out and in Respectively
  - Swipe Hand side part to switch between Windows (Basically Alt + Tab function).
- Will try to implement scrolling functionality by simultaneous movement of index and middle finger.

(2) Make a form of computer input device whereby the activity on portable keyboard sticker would serve the function of original keyboard. When a user touches the surface covered by portable keyboard sticker, the device records the corresponding keystroke by using a camera which picks up finger movements and processes them to identify the key that has been pressed by the user and does the corresponding action on a computer screen with the help of Bluetooth / Usb device.

Components Used:-

a) USB/Bluetooth Camera
b) Sensors
c) IR camera
d) Software that converts the coordinates to identify actions or characters
e) Portable Keyboard Sticker

Expected Cost : Maximum 7000/-

Plan of Action:

1 st Week:

a) Gathering the required components.
b) To start learning the skills which would be required in this project like microcontroller coding, Image processing, Python and Visual Basic . etc.

2 nd Week:

a) Start forming a basic plan for the project.

b) Decide the circuits and wiring for the project and get it approved by mentors.

3 rd Week:

a) Start working on the Image Projection.

b) Start working on processing the data from the IR sensors.

c) Writing the required code and implementing the mouse function.

4 th Week:

a) Start working on Identification of the key pressed for the keyboard.

b) Test the work completed in previous week.

c) Using VisualBasic to co-ordinate with Windows system to implement the required interface.

d) Calibrating the mouse with software and developing sensitivity of the mouse.

5 th Week:

a) Intensive testing and debugging of the project.

b) Give final touches to the keyboard and mouse.

c) Implementation of additional feature like triple tap to switch to hologram keyboard etc.