ITSP 2015

Team name: Pura complete karenge
Club: Electronics and WNCC
Members: Arka Sadhu, Pulkit Goyal

PROJECT NAME: Virtual Reality

Description:

The end product will be a kind of gaming console which will enable a user to play a game (say counter strike) in the real world, using real movements of the body

Components required:

>2 Camera(s) for image processing : Rs 2500 each
>Computer with the game installed
>HDMI/Usb cables : Rs 500 each
>Gyroscope/Accelerometer (3 axis): Rs 1200 each
>Extra accessories like toy gun: Rs 500
>Mobile phone/LCD Screen: Rs 4000 for lcd screen.
Estimated cost: Rs 12000

Skills required:

>Ability to do serial communication with the pc via the usb cable for the control of the game
>Use gyrometer/accelerometer sensors to track the user's neck movement.
>Using Opencv, to detect the movements of the body, create a 3D wireframe of the user.
>LCD/Phone interfacing with the laptop display

Implementation steps:

>Then we will setup the sensors(accelerometer, gyroscope) to detect the neck movement of the user so as to see which direction he is facing.
>Coding the LCD/Phone
>The motion of the body will be detected by image processing (may be 2 cameras from 2 differrent views to detect the motion of the person playing the game)
>Integrating the readings of accelerometer/gyroscope and camera with the game.

Week 1:

>Get equipped with the required tools: research, components, softwares.
>This includes basic data gathering, research work and searching for the required hardware and software resources.
> Be ready with the final design (get it approved from mentors)
>Start the LCD code.

Week 2:

>Complete the duplication of laptop screen output to that on the LCD
>Get the accelerometer, gyroscope in place, and co-ordinate with the pc.
>And keep on coding with cardboard sdk.

Week 3:

>Work on image processing

>Create a 3D frame of the body and be able to detect the motions of body as per requirement in the game.

Week 4:

>Put it all together and integrate it with game, and spend the rest of the time to debug it.
>Create some more input options for the other functions in the game

Week 5:

>Try to generalise the code, so that it can be used with any game, with the required hardware.

What we expect to learn from this project:

>Know how to use a LCD.
>Know how to communicate with the laptop (HDMI/ USB ports)
>Know how to use the gyroscope/accelerometer
>Become expert in Image processing.