ITSP 2015

TEAM NAME: Geek Gamers

CLUB: Electronics

MEMBERS: Arka Sadhu, Pulkit Goyal

PROJECT NAME: Virtual Reality

Description:

The end product of our project will be a kind of gaming controller which will enable the user to play Counter Strike imagining himself to be actually inside the game.

Components required:

>Computer with the game installed
>HDMI/Usb cables : Rs 500
>Arduino Uno (2): Rs 1500
>3 Axis Gyroscope/Accelerometer: Rs 1000
>Toy gun: Rs 800
>Google cardboard : Rs 1000
>Switches for the gun: Rs 500
>Headphones: Rs 300
>Connecting Wires: Rs 100
>Hardboard/Wood: Rs. 100
>Heat shrink tubes: Rs. 100
>Extra: Rs. 100

Estimated cost: Rs 6000

Skills required:

>Ability to do serial communication with the pc via the usb cable for the control of the game.
>Ability to change the firmware of the arduino to mouse/keyboard.
>Use gyrometer/accelerometer sensors to track the user's head movement.
>Phone interfacing for the laptop display to be streamed.

Implementation steps:

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 and get it approved by the mentors

Week 2:
>Get the accelerometer, gyroscope readings to measure the yaw, pitch and roll.
>Code in the atmega16u2 microcontroller of the Arduino to change its firmware.

Week 3:
>Use the gyroscope and Arduino to make a mouse
>Create a prototype for a keyboard.
>Buy a google cardboard and use it with Cardboard app.
>Buy a gun and set up switches at appropriate places for controlling the game.

Week 4:
>Set up interfacing with the mobile so as to display the laptop screen on the phone.
>Put together all the components into a head mount and work on its aesthetics.

Week 5:
>Give finishing touch to the project.
>Complete the documentation and make a video showing its working.

What we expect to learn from this project:

>Know how to use the gyroscope/accelerometer
>Learn how and what the smaller microcontroller does and how we can use it for making an Arduino into other USB devices.
>How display can be altered and appropriate lenses can be used for giving a 3D effect to the user.