

# **ITSP Project**

## **Gesture Controlled Surveillance Bot**

### **Introduction –**

- Surveillance bot (mechanically sturdy bot with a camera on it to send live video stream to the laptop)
- Gesture controlled (one hand controls bot, other controls camera mounted on it)
- Hand movements to be measured using accelerometer with wireless communication between bot and hand
- Live video stream from the bot possible using image processing

### **Motivation –**

- To make it fun for the user to control the bot
- Precise hand movements lead to precise handling of the bot and camera, thus giving a natural feel to the person handling the bot !

### **Concepts behind the project –**

- Using inputs from accelerometer to control the bot as well as servo motors mounted to camera
- Wireless communication between the bot and laptop( start with wired and then implement the wireless feature)
- Learning about the functioning of a advanced microprocessors (most probably RPi)
- Using servo motors efficiently to build a 360\* rotation of camera possible
- Using openCV for video stream and photo capture

### **Plan of Action –( We only have 4 weeks )**

#### **Week 1 –**

- Learning about the wireless communication and how to take various readings from accelerometer
- Making the mechanical bot

**Week 2 –**

- Implementing wired communication between camera and laptop
- Making the gloves for control ( 2 gloves to be made)
- Testing the bot only

**Week 3 –**

- Mounting servos and camera
- Testing the bot and camera with gestures
- Trying to build another gesture to take a photo i.e like a screenshot from a live video feed ( closing of fist )

**Week 4 –**

- Implementing wireless communication between camera and laptop ( using a wifi module)
- Bringing it all together!
- Making the bot and the gloves look appealing

**Team members –**

1. *AjinkyaGorad*
2. *ArushiPoddar*
3. *Avineil Jain*
4. *Himani Mehta*

**Applications –**

The hand gesture movements can be used to control a wheelchair

Surveillance bots can be built and further developed (for instance in wildlife video capture bot or to traverse places where humans cannot go )