FIRST SUBMISSION REPORT

TITLE: PIXELATE

TEAM ID: PX1080

TEAM INFORMATION:

NAME	P Sachin Mohan	Dron Kumar	Sayan Saha	C R Karthik
INSTITUTE	SVNIT	SVNIT	SVNIT	SVNIT
YEAR	B.TECH II	B.TECH II	B.TECH II	B.TECH II
COURSE	ECE	ECE	ECE	ECE

BACKGROUND WORK ON NEED OF PROJECT:

IIT Bombay is conducting Techfest during Dec 26 to 28,2015.It is conducting a variety of events in this techfest like various technical competitions, workshops, lectures, exhibitions, etc.

The competition we are participating is PIXELATE. Here we have to build a robot which works on the concept of image processing, and finds its way towards the end zone by overcoming the obstacles that comes in its way and also performing the required tasks. This is he first time we are going to do a project on image processing.We have chosen to do this because we get an idea on image processing and that too we are to perform at one of India's topmost colleges.So we will put in an extra bit of hardwork and give fullfledged attention for the project.

IDEATION WORK TILL DATE:

We are combining the concept of interceptor and block lifting bot. Image processing is a related to the signal processing, where an input signal is processed to give an output. Here the input signal is in the form of an image or video clip etc. The output may be an image or set of characteristics related to the image.

Interceptor includes the concept of image processing .It performs various tasks as per the instructions given to it.These instructions are given based on the image being processed by the processor. This interceptor is designed using IC's, Microcontrollers etc.

Block lifting includes the mechanism wherein a bot lifts a block at one place and deposits at the deposit zone. This bot is designed using various IC's and microcontrollers.The bot does it by using the data (image) from the surroundings .The bot is mounted with a webcam which captures the image and sends it to the computer for processing .The computer processes the image, for this we decided to use opencv library and visual studio 2012 which might change in the future according to our needs. The responsibility of deciding the actions (to turn left right or steer straight) lies solely with the computer .The program writes the data in the for of a integer between 0-9, the arduino reads this instruction and applies required voltage to the motors.

Algorithm of our bot:

1. Open the com port 2. load Image from webcam 3. convert image (RGB to HSV) 4. apply threshold 5. filter Image 6. detect the object7. decide action (to go straight or right or left) 8. pass information to arduino 9. repeat steps 2-8 10.close com port

IMPACT FORSEEN OF THE PROJECT

We have purchased all the equipment required for the project which includes both mechanical and electronic parts. Our mechanical work that is required has been completed and our work related to electronics is still in process.