LOCAL POSITIONING SYSYTEM USING CAMERA

TEAM: QUADRON

We have planned to build a local positioning system using camera which can detect a bot in the space defined by the camera and also move it to a specified co-ordinate in that space.

Initially we will try with one camera and the one plane. A white line will be used to define the boundary of the plane and red color marker will be placed on the bot to define its position. The camera will then make an imaginary co-ordinate system and will locate the bot in it.

After successful implementation of this we will use four cameras to define the whole 3D space of the room.

The bot will be USB controlled.

TIMELINE

WEEK 1:

Try to get all the components required for the project.

Start learning Image Processing.

Start with the building of simple USB controlled bot.

WEEK 2:

Continue with the learning of Image Processing.

Learn how to define a co-ordinate system using camera.

Try to implement what we have learned using one camera.

WEEK 3:

Debugging and modification.

If successful then move on to four cameras.

WEEK 4:

Debugging and modification.

If time permits we will try to make a wireless bot which can receive the commands from the computer.

COMPONENTS REQUIRED:

Component	quantity	cost
Web cameras	4	Rs.3000
Motors	4	Rs.1200
Arduino	1	Rs.800
Battery	1	Rs.800

Other stuffs	-	~Rs.800

At present, these are the components that we'll be needing. But we might be needing some other components too, if we are able to complete this project within the stipulated time.

Arduino WIFI shield	1	Rs. 8000

EXPECTED TO LEARN:

Image processing

Local positioning system

Perspective Projection

Team work