

Virtual Lab Experiment Manual

Objective: To find out the elevation of various points on the ground using auto level.

Equipment details:

1. Auto level



2. Tripod stand



3. Flag



4. Measuring tape



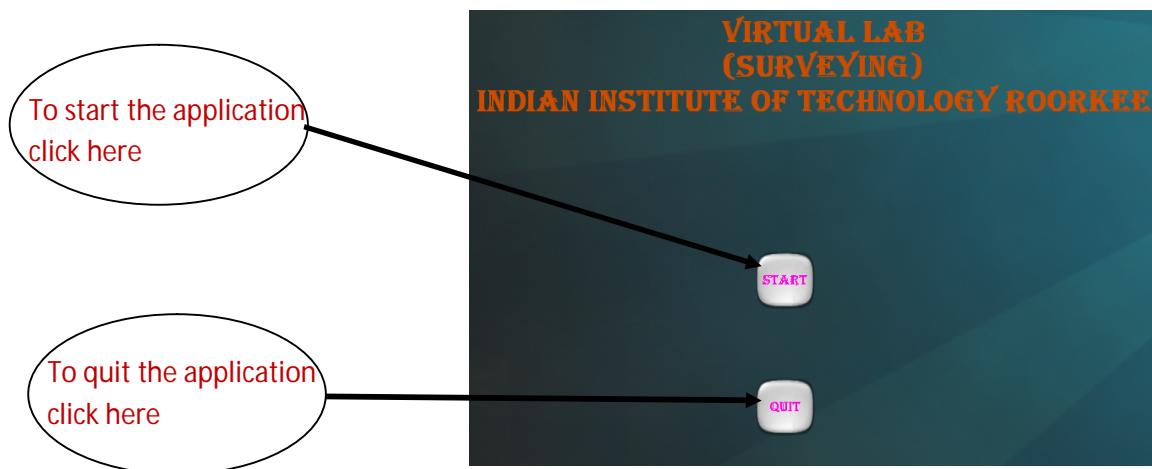
5. Staff



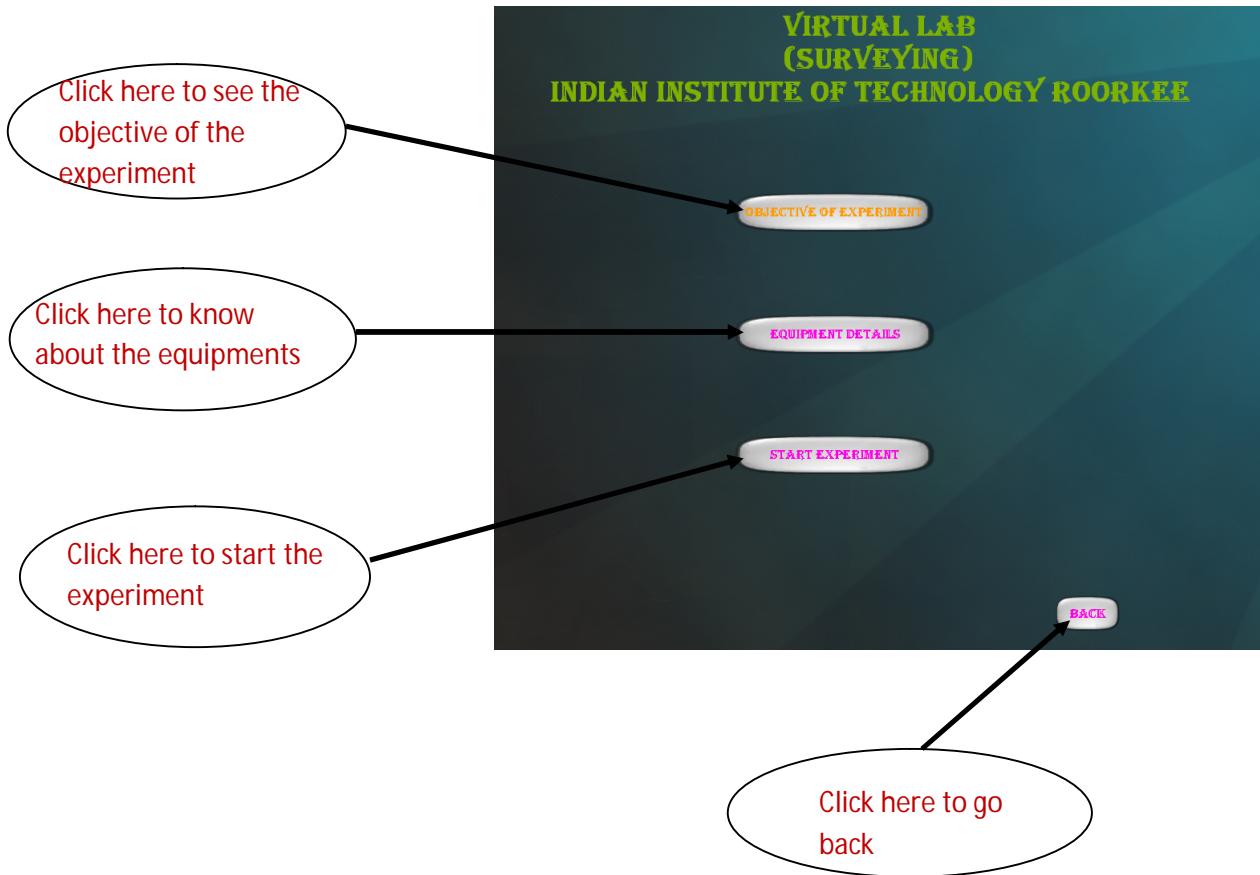
Procedure: How to carry out this experiment in 3D environment on a computer system.

Steps to be followed:

Step 1: Click on the main file until home screen appears as shown in the picture below:



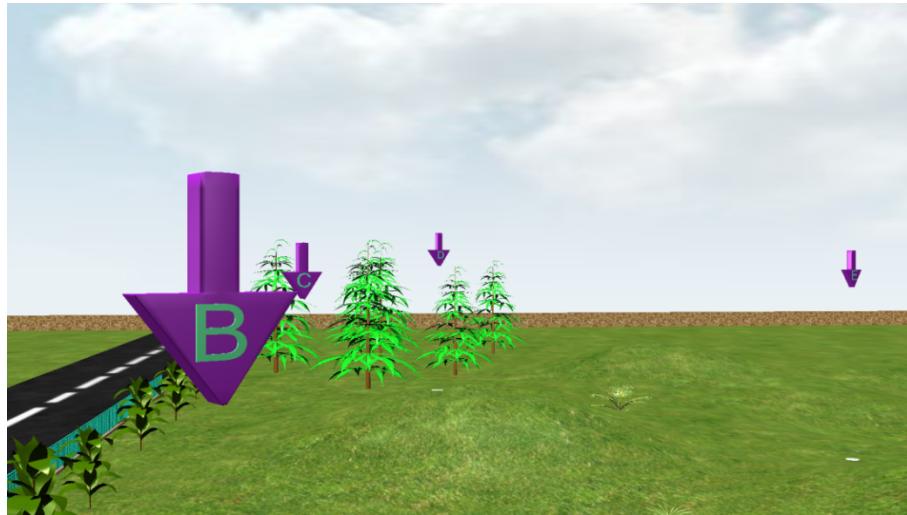
For starting the experiment click '**start**' and this would be followed by appearance of the following window:



We get a whole 3D and realistic environment, which is user friendly, as soon as the experiment starts.



We see five different arrows (A, B ,C ,D,E) showing different locations on ground as depicted in the picture below.



Step 2: For movement in a 3 D environment use following keys:-

W → Forward, **S** →backward, **A**→left, **D**→right, **Q**→up, **Z**→down.

Step 3: Select the required points and place the tripod at those points using tripod keys.

Tripod keys:

1. Tripod translational motion = **left shift + Up, Down, Left, Right (Arrows Keys)**
2. Tripod Rotational Movement = **right shift + Up, Down, Left, Right (Arrow Keys)**

Step 4: Now place the auto level on the tripod with the help of auto level keys and level instrument with respect to the ground.

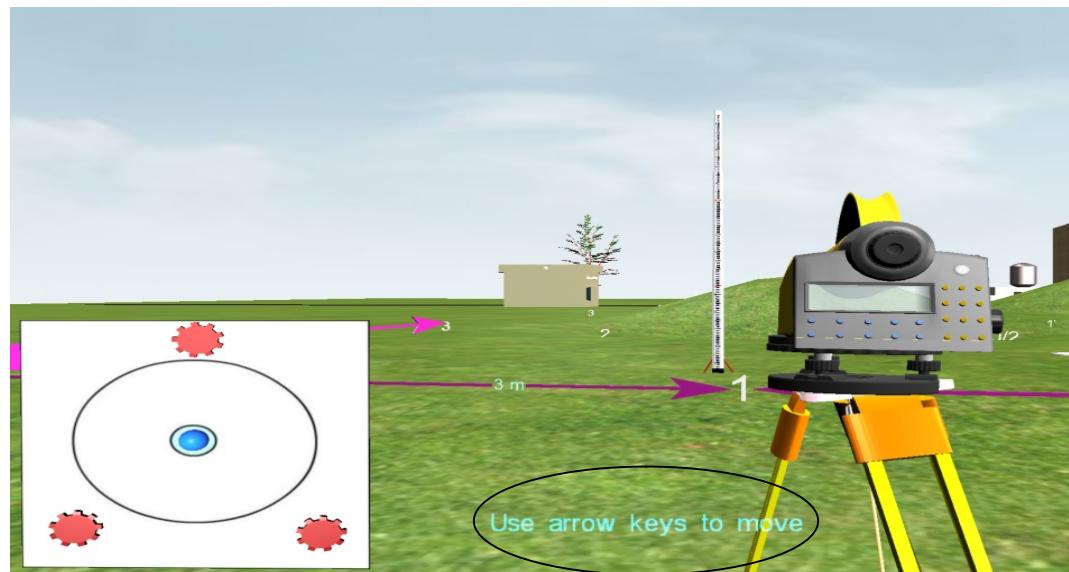
Auto level Keys:

1. Auto level Translational Movement = **left ctrl + Up, Down, Left, Right (Arrow Keys)**
2. Auto level Rotational Movement = **right ctrl + Up, Down, Left, Right (Arrow Keys)**

Step 5: On screen instruction (press L to show/hide leveling panel, press 0 for telescopic view) appears.



The instrument can be levelled by pressing **L**.



Arrow keys (Left, Right, Up, Down) are used for moving the Leveling screws. Bring the pond bubble in the centre.

Step 5: Now put staff on the required point (A, B, C, D, E) with the help of staff movement keys.

Staff Movement :

Left mouse click= moves in any direction.

Right mouse click = up and down.

Middle mouse click = rotation in any direction.

Step 6: Press **0** for the telescopic view (to see the reading on the staff).



- Use **+/**- or **M/N** keys to zoom in and zoom out.
- Use **R/T** for blurring or sharpening the cross hairs.

Step 7: Take the staff reading and repeat steps 5 and 6 for taking readings of other points.