

# Virtual Lab Experiment Manual

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

## Equipment details:

1. Auto level



2. Tripod stand



3. Measuring tape



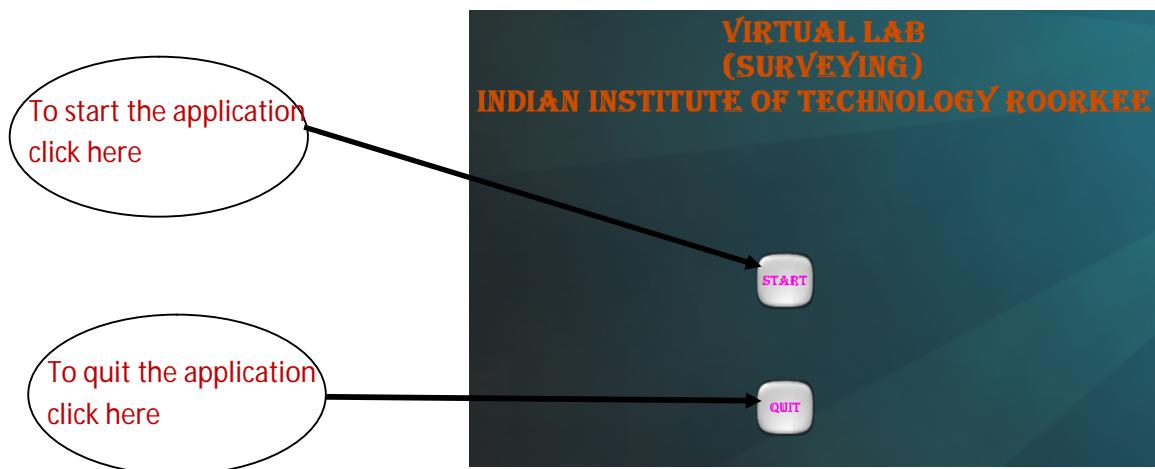
4. Staff



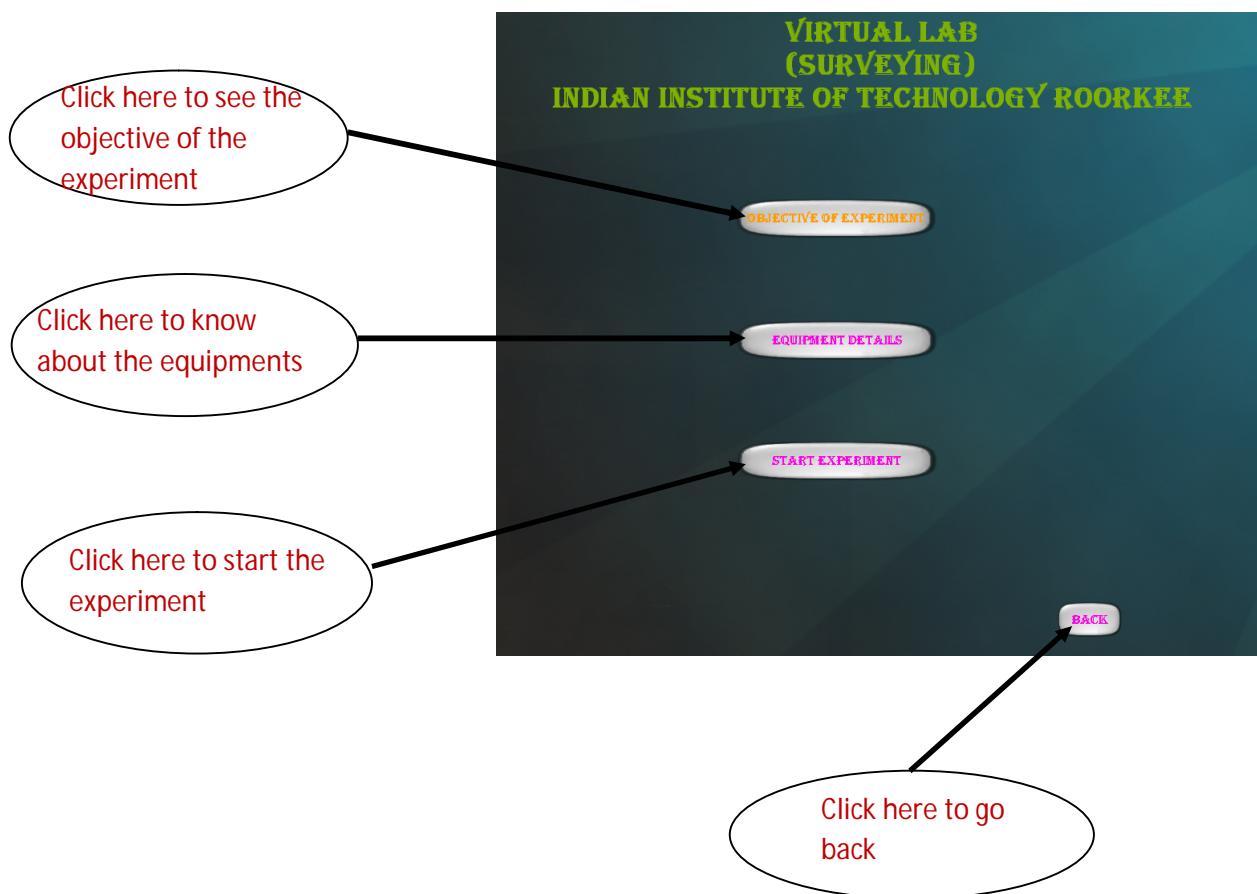
**Procedure:** How to carry out this experiment in 3D environment on a computer system

**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.



Control stations are marked as 0/1,0/2 etc in longitudinal direction 20 m apart from each other and 1,2,3 at a distance of 3m,6m,9m respectively from 0/1 in the transverse direction and 1',2',3' on the opposite side in the same manner.

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.

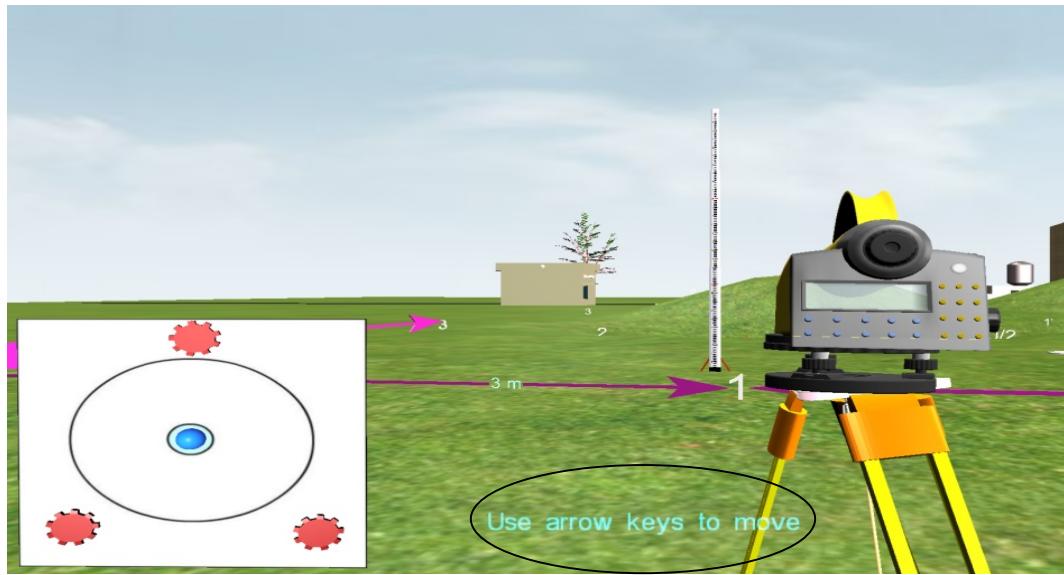
## Auto level Keys:

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)



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 staff reading and repeat steps 5 and 6 for taking readings of other points.