

# Virtual Lab Experiment Manual

**Objective:** Measurement of Horizontal and Vertical Angles by using Total Station.

## Equipment details:

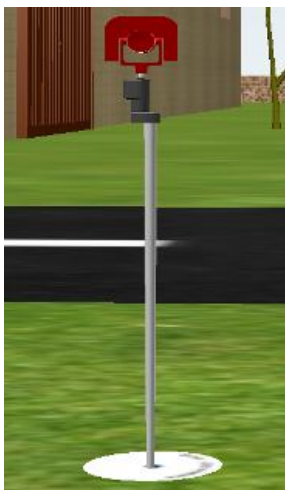
### 1. Total Station



### 2. Tripod Stand



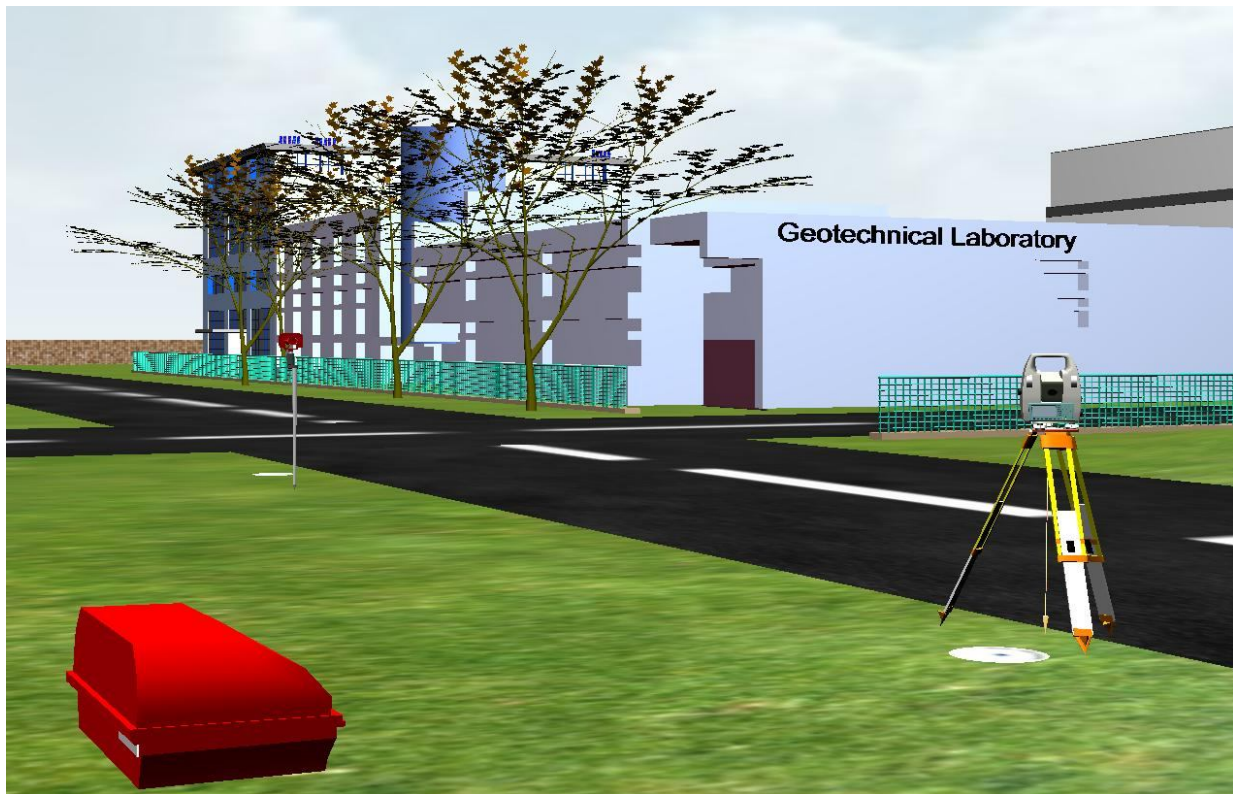
### 3. Prism



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

**Steps to be followed:**

Step 1: Click on “Working of Instrument” to start the experiment in a virtual 3D environment. We get a whole 3D and realistic environment (see the picture below), which is user friendly, as soon as the experiment starts.



Step2: For movement in a 3D 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:

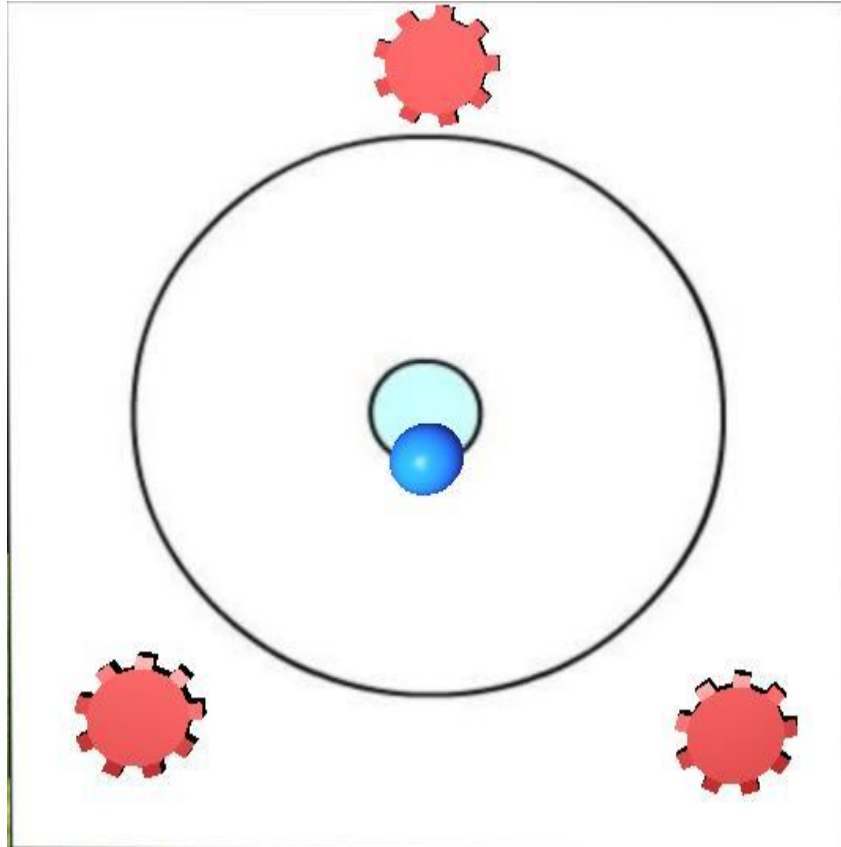
1. Tripod Translational Motion=Left Ctrl + (Up, Down, Left, Right Arrow Keys & <, > Keys)
2. Tripod Rotational Movement = Right Ctrl + (Up, Down, Left, Right Arrow Keys & <, > Keys)

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

### Total Station Keys:

1. Total Station Translational Movement = Left Alt + (Up, Down, Left, Right Arrow Keys & <, > Keys)
2. Total Station Rotational Movement = Right Alt + (Left, Right Arrow Keys)

Step 5: To level the instrument, press "~ key" to show Leveling Panel and Tab key to hide Leveling Panel as shown in the picture below.



Use **4, 5, 6, 7 keys** for moving the Leveling screws. Bring the pond bubble in the centre.

**Step 6:** Keep the Prism Pole on a point, whose observations are to be taken, with the help of **Prism Movement** keys.

**Prism Movement Keys:**

Left Shift + (Up, Down, Left, Right Arrow keys)

Step 7: Press **0** for toggle between Telescopic view and Total Station.



- Use **8, 9** keys to zoom in and zoom out.
- Use **R/T** for blurring or sharpening the cross hairs.

Step 7: To show the readings, press **P** as shown in the picture below:

