

WHAT IS CLAIMED IS:

1 1. A method for determining a distance to a point using a measurement
2 device, the method comprising:
3 aiming the measurement device at the point;
4 determining a tilt of the measurement device using one or more tilt sensors; and
5 computing the distance to the point using the tilt of the measurement device and a
6 height of the measurement device.

1 2. The method of claim 1 wherein the distance is computed using the
2 equation $d = \frac{h}{\tan \theta}$.

1 3. The method of claim 1 wherein aiming the measurement device comprises
2 locating the point in an image on a screen of the measurement device.

1 4. The method of claim 1 wherein aiming the measurement device comprises
2 aligning a portion of a real-time video display of the measurement device with the point.

1 5. The method of claim 1 further comprising inputting the height of the
2 measurement device.

1 6. A method for determining a position of a point using a measurement
2 device, the method comprising:
3 aiming the measurement device at the point;
4 determining a tilt of the measurement device using one or more tilt sensors;
5 determining a position of the measurement device;
6 determining a bearing of the measurement device;
7 computing a distance to the point using the tilt of the measurement device and a
8 height of the measurement device; and
9 determining the position of the point using the position of the measurement
10 device, the bearing of the measurement device, and the distance to the point.

1 7. The method of claim 6 wherein the distance is computed using the
2 equation $d = \frac{h}{\tan \theta}$.

1 8. The method of claim 6 wherein the position is determined using a global
2 positioning system (GPS).

1 9. The method of claim 6 wherein determining the position of the
2 measurement device comprises using a global navigation satellite system (GNSS).

1 10. The method of claim 6 wherein the bearing is determined using an
2 electronic compass.

1 11. An apparatus for determining a position of a point, comprising:
2 an aiming device configured to align the apparatus with the point;
3 one or more tilt sensors configured to determine a tilt of the apparatus while
4 aligned with the point;
5 a position measurement device configured to determine a position of the
6 apparatus;
7 a bearing measurement device configured to determine a bearing of the apparatus;
8 a first computing module configured to compute a distance to the point using the
9 tilt of the apparatus and a height of the apparatus; and
10 a second computing module configured to determine the position of the point
11 using the position of the apparatus, the bearing of the apparatus, and the distance to the point.

1 12. The apparatus of claim 11 wherein the aiming module comprises a
2 camera.

1 13. The apparatus of claim 11 wherein the position measurement device
2 comprises a global navigation satellite system.

1 14. The apparatus of claim 11 wherein the bearing measurement device
2 comprises an electronic compass.

1 15. The apparatus of claim 11 wherein first computing device uses the
2 equation $d = \frac{h}{\tan \theta}$ to compute the distance to the point.