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DIGITAL ALIDADE

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ABSTRACT

The digital alidade is invented for accuracy purposes in plane table survey by using this type of alidade work will go faster without any manpower with more accuracy that normal alidade cannot give.it also an economical instrument than the other instruments used in plane table survey less time required for setting as simple fixing is there.

Keywords: Digital Alidade, Plane alidade, Plane Table, Scale, Survey.

I. INTRODUCTION

In Plane table surveying, we are using plane alidade for bisection purpose. Basic problem of plane alidade is that we are unable to bisect and put it on drawing sheet accurately, Due to this palne table method of surveying is considered as approximate method. This paper represents digital alidade. It is made up of stainless steel with measurement scale provided on it. Also electronically distance measurement device is set on scale which measure distance accuratly from center of plane table to object to be bisected. Also it facilitate exact line of bisection on drawing sheet, which is actually on ground.

II. LITERATURE SURVEY

The term alidade can refer to the sighting mechanism of any instrument used for surveying or navigation. In this catalog the term refers to the sighting mechanism used with a plane table for topographical work that is, for mapping the surface features of the earth. Early alidades were simple bars with open sights at either end. Telescopic alidades came into use in Europe in the early 1800s, and were soon introduced to American practice. In 1865 the United States Coast Survey stated that the plane table with telescopic alidade was the "principal instrument for mapping the topographical features of the country," and noted that it was "universally recognized as the most efficient and accurate means for that purpose".

III. CONSTRUCTION AND WORKING OF DIGITAL ALIDADE

3.1 Digital alidade consist of following component part (Refer Fig. 1)

a) Scale: Scale of digital alidade is made up of stainless steel and graduated from 0 cm to 55 cm having least count 1mm. Central groove is provided to scale, which provide facility of drawing line of bisection.

b) Object vane: Object vane consists of vertically rectangular plate having rectangular groove at centre which facilitates fixing of horse hair centrally. Horse hair provides bisection from object side. At the bottom of horse hair circular notch is provided for laser bisection.

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c) Eye vane: Rectangular vertical plate of stainless steel with rectangular groove at its centre is provided for bisection of object from observer sight.

d) Electronic distance measurement: One compatible electronic distance measuring device with laser bisection is provided for bisecting and measurement of distances. This also provide facility of measurement of inclined distance also which is not provided in plane alidade.

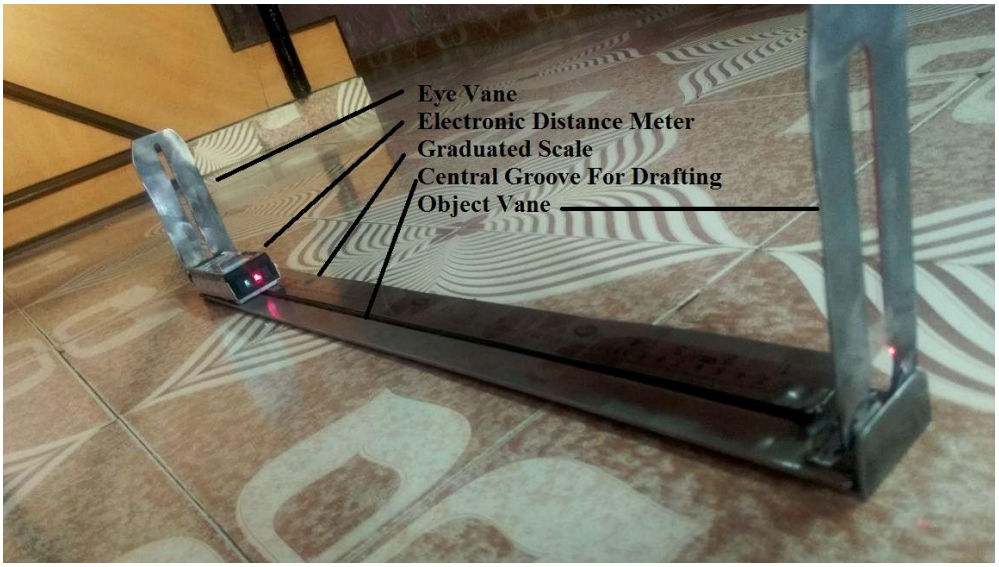

Fig. 1 Digital Alidade

IV. CONCLUSION

4.1 Advantages

i) Plane table survey using Digital alidade requires less manpower.

ii) Digital alidade gives more accuracy than plane alidade.

iii) Less time is required.

iv) Digital alidade is suitable in hilly, uneven, undulated country.

v) Digital alidade provides better facility for drafting.

vi) Digital alidade works during night.

vii) It saves the time of surveying.

Viii) Easy to handle.

4.2 Limitation.

i) Digital alidade has limited range of bisection.

4.3 Application.

i) Digital alidade can be used for measurement of hilly area with high accuracy.

ii) Effectively used in rainy season.

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