MODULUS ELASTICITY OF CONCRETE BEAM ANALYSIS WITH STATIC LOAD BY USING CLOSE RANGE PHOTOGRAMMETRY METHOD

Student Name: Suryo Dahono
NRP : 3510 100 001
Department : Geomatics Engineering FTSP-ITS
Supervisor : DR-Ing. Ir. Teguh Hariyanto M.Sc

ABSTRACT

Elasticity value of concrete is very needed for knowing strengthness of that concrete in order to support a certain load until maximum elasticity point, therefore can be applied for many purposes like constructions, bridges, highway, building, etc. Level of elasticity also determine the power of concrete in order to avoid some noise like earthquake. But the limitation to put the elasticity test sensor which is called Linear Variable Displacement Transducers (LVDT) just able to detect one point in certain position.

In this research is find a posibility method using Close Range Photogrammetry method which using non-metric cameras for knowing the elasticity level of concrete beam. The Close Range Photogrammetric method can be applied for observation and evaluation all of point which distributed in concrete surface when loading test happen. Therefore the concrete conditions can be better monitored trough that records process. Different from direct method which doing by put sensor in one certain position when loading test happen that can’t showing all of concrete point conditions. The concrete quality can be monitored through Close Range Photogrammetry method because this method can be recorded all of surface and measure with better accuracy.

From the research’s result, the elasticity curve and strain value at highest load (145.000 Newton) by all of load (250.000...
Newton) between direct method and Close Range Photogrammetry method showing differences which not significance that is 4.120 mm for direct methods (LVDT) and 4.268 mm for Close Range Photogrammetry Methods.

**Keyword:** Close Range Photogrammetry, LVDT, Elasticity, Strain, Concrete.