DEVELOPMENT OF PERPENDICULAR MEASURING TOOL

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Abstract

In 2010, Adib M and Grandis AS has been designing and making perpendicular measurement tool using a screw and DC motor as a mechanism of motion, AD574 microprocessors as a signal processing and using an LVDT sensor. The measurement results obtained in the graphs form can be displayed through the Visual Basic 6.0 Software and can be directly printed. But the tool also has limitations on the amount of deviation rate, the precision of measurement data, LVDT always contacts with the specimen so that still needs development.

In this final project, development of perpendicular measuring tool and their control unit based computer from a previous final project. This tool uses a screw, solenoid and stepper motor as a mechanism of motion and the microcontroller for controlling their. LVDT sensors used to measure deviation position of the data obtained and processed using the Visual Basic software.

Evaluate the measurement is necessary to find out the accuracy of this measurement tool, by using Spirit Level Square and Cylinder Standard as a calibration specimen. In experimental measurements can be seen that the deviation value of measuring tool for the up direction in Standard Cylinder of 253 μm and the Spirit Level Square of 197 μm for 120 mm distance and for down direction is 366 μm for Standard Cylinder and 209 μm for Spirit Level Square for 120 mm distance. Deviation in Cylinder Standard is used to compensate for the subsequent measurement process because its value is greater.
Keyword: Perpendicular measuring tool, stepper motor, LVDT, microcontroller