

ABSTRACT

Centrifuge is device that used to separate a compound that have different weight molecule with using centrifugal force. Centrifugal force is force which work on rotating objects with speed has been determined which away from the direction of the force central or core, so can separate the solution.

Have been made before, centrifuge equipped with a digital tachometer based by Saiful Huda (2008), but the data are less accurate because of the incompatibility of speed in the settings by the user with real speed. To developing the centrifuge the author made a tool "Microcontroller Based Centrifuge" with control timer 1 – 10 minute and control speed 0 – 3000 rpm whit increase each 500 rpm. Using optocoupler TCRT5000 as sensore motor rotating and the result will displayed on seven segment.

After testing and measuring with stopwatch and tachometer, when rpm 500 = 1.84% = 1.62% 1000 rpm, 1500 rpm = 0.226%, 2000 = 1.24 rpm, 2500 rpm = 0.216, = 0.924% 3000 rpm, and when the time 1 minute = 0%, 2 min = 0.167%, 3 min = 0.33%, 4 minutes = 0.416%, 5 min = 0.53%, 6 minutes = 0.5%, 7 min = 0.38%, 8 minutes = 0.33 %, 9 minutes = 0.29, 10 min = 0.33% in the average error get error timer = 0,327% and error rpm = 0,92%

Kata Kunci: Centrifuge, TCRT5000, Rpm, Seven segment, Waktu