ABSTRACK

A fracture is a condition where a bone has cracked or broken. Fractures differ from other injuries to skeletons such as dislocations, although in some cases it will be difficult to distinguish them. Sometimes a person may have more than one injury. To see the condition of the bone is done using CT-scan (Computed Tomography). Analysis of the results of CT or X-ray of bone fractures is very necessary in monitoring the growth of bones after cracking. Therefore, we need a system to facilitate the doctor or other medical staff in carrying out the analysis.

In this final project research is made a simulation to see bone growth after cracking or fracture. By the help of the Image Registration method and the point determination by the control point, the reference image and the target image can be aligned. Therefore, the system can analyze bone growth at certain intervals based on image capture. Based on trials conducted this simulation can help victims of fractured / broken bones in seeing bone growth. To overcome the resolution of the image, the Multiresolution Pyramid algorithm is used. The Maximization Expectation algorithm is used to overcome the noise that appears in the image. In this simulation two different transformations are used in the Image Registration process. This was done to compare them. And it was found that Affine's transformation had better results than Rigid's transformation. In testing using the Affine transformation, the current Function Value is 0.0146307 and the response time is 2328.194505 Detiks and the Rigid transformation is obtained by the Current Function Value at 0.110436 and the response time is 287.880304 Detiks.

Key Words **:** *Image Registration, Affine Transformation, Rigid Transformation, Maximization Expectation, Multiresolution Pyramid*