

## ABSTRACT

Now these technological developments in the field of robotics is very rapid. One was on the humanoid robot is a robot that looks entirely formed by the human body that is able to interact with equipment and surroundings made for humans. In general humanoid robots have a body with a head, two arms and two legs, although there are also some forms of humanoid robots are just a part of the human body.

Inverse kinematics is a method used to determine any movement of a system of positions to be achieved. Kinematics of the robot is a form that contains a statement about the mathematical description of the geometry of a robotic structure. Kinematic equations can be obtained from the relationship between the concept of joint space geometry (joint) coordinates to the robot with a concept that was used to determine the position of an object. With kinematic models, the programmer can define a reference configuration that must be fed to the input of each actuator so that the robot can perform simultaneous movement (around the joint) to reach the desired position. In contrast, the position information (angle) expressed by each of the joint when the robot is doing a movement, the kinematic analysis programmer can determine where to position the moving parts of the robot in the coordinate space ..

From the test results, the robot can move well with the fast delay per step is 25000 us and fastest servo speed is 100 (in digital), that is, when the robot motion path, turn right and turn left. Delay by the slowest step is 40000 us and servo slowest speed is 70 (in digital), that is, when the robot motion and slide left slide right.

***Keywords:*** Robot humanoid, inverse kinematics, forward kinematics