**ABSTRACT** 

Various tools are created to facilitate the production system in the industrial

world, so that the use of time and energy are spent more efficiently. With the

existence of the Hook Trolley Control, AGV (Automated Guided Vehicles) can

connect with the trolley, and the movement of the trolley will be controlled by

AGV. This study discusses the design of control systems in the AGV that involves

hook, trolley, image processing and microcontroller.

On AGV, hook will be connected to microcontroller and AGV. Hook consists

of electric jack and iron plate, electric jack serves as a support and an actuator of

iron plate that serves as a cross section load, iron plate can rise / fall, connect /

release hook to / from trolley. AGV is also connected to a pc that works for

processing data of image processing from webcam. This webcam will capture the

existence of a trolley, this trolley image which is then processed by image

processing. Then the data is sent to the microcontroller. After the data is processed

then the microcontroller sends information to the motor driver to control the

movement of AGV and control the electric jack movement.

From the research we obtained distance calculation between camera with the

target object, so that AGV can stop at the closest distance to the object is 80 cm

with a conversion in pixel is 2.5 pixels. To know the position of the object is in the

straight line of the camera, then we make a center line of the camera, from the

midline it can be seen that the object is on the left or right of the camera. After the

AGV stops, the hook is lifted and connect the AGV and the trolley precisely

according to the midpoint of the object so that the load is lifted and not loosened

when both devices are running.

Keywords: AGV, microcontroller, trolley, hook, control system.