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# SCHOOL OF ENGINEERING

## FINAL REPORT

## DESIGN OF REAL TIME AUTO TARGET TRACKING SENTRY GUN DEFENSE SYSTEM



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# Abstract

An Auto Target Tracking Sentry Gun Defense System is presented. The target tracking system is made up of one Logitech web camera, BB gun, camera tripod, servo motor, laser pointer, servo motor controller box and an image acquisition. The servo motor controller box consists of a microcontroller to receive data from computer station to control servo motor direction. The image acquisition software provide by Matlab is capable to display and tracking object. This project is used Simulink program to develop a simple blockset to control the system. Three different object tracking algorithm have been developed "Background Subtraction Algorithm", "Absolute Difference Algorithm" and "Auto Frame Background Subtraction Algorithm" are conducted to test the performance of the target tracking system. The acquired data are analyzed and presented in these two different algorithms, which are static analysis and motion analysis.