

ABSTRACT

Technology developments that happen a lot today have given much easiness that never obtained before. Many things that formerly done by humans could slowly be replaced by automation tools that has been created specifically. One example is the application of automatic sliding gate on the smart home system. But in general, most of automatic sliding gate that widely applied today doesn't have a control technique. This makes the movement of the gate is relatively slow and less refined.

Application of control techniques on an automatic sliding gate system can cope with movement problems mentioned above. Application of appropriate control techniques can make the movement of the sliding gate more quickly, without causing inertia which can result in sliding gate does not stop at the point it should be. In addition, the application of appropriate control techniques can also refine the movement of automatic sliding gate itself. Therefore, in this final paper will be a Design and Implementation of Automatic Slide Gate with PID Control Based ATmega AVR 128. At the end of this task will be seen how the system responds to the PID control techniques embedded in an automatic sliding gate.

The results of testing with the best performance of the application of control techniques on an automatic sliding gate systems obtained at constant $P=7$, $D=40$ and $I=2$, with a time of 11.2 ms of sampling time, which still works quite well after tested 3 times. The constant above have a delay time of 67.2 ms, rise time of 156.8 ms, peak time of 179.2 ms, settling time of 201.6 ms and the maximum overshoot of 24 cm.

Keywords: sliding gate, AVR, ATmega 128, PID, control.