ABSTRACT

Middle-size robot soccer are one of the divisions competed in national events such as the Kontes Robot Indonesia (KRI) and international events such as the Middle Size League (MSL). One important component in soccer robots is the kicker system with a high thrust, easy to control and has good system security. High voltage solenoid (± 380 V) based kicker system is one type of kicker system that has several advantages over other types of kicker systems. One of them is the kick style produced is greater than the other type of kicker system. In the system that is built, the number of solenoid turns (n) and *supply* voltage is designed so that it can produce the optimal force (F). In addition, the safety system is layered using IGBT transistor components so that having a risk due to high voltage can be minimized. The results of this study are a kicker system capable of kicking loads with a mass of 1.06 kg as far as 3.5 meters. The solenoid control system developed can control the speed of the kick and control the flow of good current from the battery to the step-up transformer, from step up to the capacitor and from the capacitor to the solenoid. The system built can also monitor the voltage and step up status.