ABSTRACT

The use of power electronic components in the power conversion process has increased in accordance with the development of science and technology, especially in the work processes of an industry. There are two types of mains voltage, namely direct current and alternating current. Three-phase thyristor commutation design uses a silicon control rectifier. Based on the output voltage, rectifiers can be divided into three, namely uncontrolled rectifiers, semi-controlled rectifiers and fully controlled rectifiers. The controllable output voltage of the rectifier depends on the turning angle of the thyristor. In this research, a thyristor ignition angle control circuit for half-wave three-phase rectifier applications was produced by adjusting the amount of the thyristor ignition angle, resulting in a varying dc voltage. With an input voltage of 12 V. Trigger signal in a three-phase half-wave controlled rectifier circuit, the ignition angle can be adjusted from 56 - 90 degrees and produces an output voltage of 24-27 V.

Keywords: Rectifier, Arduino Mega, SCR