# DEVELOPING AN AUTOMATIC COFFEE MAKER IN A VENDING MACHINE BASED ON RFID

**Bastian Triyuda Ramadhan**
*Electrical Engineering Study Program, Faculty of Science and Technology*
*University of Technology Yogyakarta*
*Jl. Ringroad Utara Jombor Sleman Yogyakarta*
*E-mail: momojr157@gmail.com*

**ABSTRACT**

*The advancement of automation technology in the food and beverage industry has driven the development of efficient and self-service coffee dispensing solutions, such as the integration of a vending machine with an automatic coffee maker. This research aims to design and implement an automatic coffee maker that can process orders from an RFID-based vending machine. The system is controlled by an Arduino Mega 2560 microcontroller and equipped with an infrared sensor for cup detection, a DS18B20 temperature sensor for water temperature control, and actuators including DC motors, servo motors, and relays to automate the entire process—from cup dispensing, ingredient filling (coffee, sugar, milk, cappuccino), hot water pouring, to stirring. Orders are processed automatically, and system status is displayed via an I2C LCD. Testing results show that the system can serve coffee within an average time of 60–90 seconds with an operational success rate of over 90%. The system effectively performs its function for automatic beverage preparation without human intervention.*

*Keywords: Automatic Coffee Maker, Vending Machine, RFID, Arduino Mega.*