

The vast increase in quantity and types of solid and poisonous waste due to economic growth, population growth and industrial pollution specifically in Nigeria, is becoming a problem. Providing a solution to this challenge is the motivation behind this research work. This paper presents the design and construction of solar powered automatic wastebin, in other to ensure effective and sustainable management of waste. The control system consists of a servomotor, ultrasonic sensor, Relay and an ATMEGA328 microcontroller programmed in C-Language. The system was designed to intelligently senses a situation where the user gets closer via the ultrasonic sensor. A servomotor is triggered to open in the sense that the waste can be trapped as soon as it receives a signal from the microcontroller. It remains open for 4 minutes and closes again. In a situation where the user remains, it takes maximum of 3 seconds to reactivate to its initial state. The results obtained from the test carried out on the system shows that the system open and closes at the required state thereby ensuring proper management and minimization of risks to the health and safety of the populace.

Keywords— Automatic; Microcontroller; Waste bin; Renewable Energy; Solar.