

## ABSTRACT

The development of technology is currently growing very rapidly. One form of technological development today is "Smart House". In the smart house, there are lots of technologies that can help make our work easier at home. The system in the smart house was created to provide comfort for residents to use home appliances. The use of advanced technologies, of course, requires large resources. In general, smart houses use a battery pack as a power source for every household appliance.

Due to the use of large resources, we need to know the condition of the batteries we use in household appliances to avoid things that are not expected. Such as damage to the batteries we use or even battery explosions that may occur. To simplify battery maintenance, a system that can manage batteries is needed or commonly known as a Battery Management System (BMS). In this system, research will be developed for balancing battery cells using a passive cell scheme and using the Shunt Resistor method. Testing on the system is carried out using 4 battery cells, using a certain time variation, which output is the same *State of Charge* (SoC) value. The result show that BMS has throughput of 98% with the average test time of 4 hours and 14 minutes.

**Keywords:** Battery Pack, Battery Management System, Resistor Shunt, Smart House.