

ABSTRACT

Technological developments, especially in the industrial sector, have helped industry players in increasing the production efficiency of a product. Many manufacturers in the industrial sector need a power source that can be carried everywhere. Batteries can be used as a solution to store the electrical power needed by electronic devices that are used daily.

Batteries, especially lithium batteries, are currently widely used in various aspects, such as in transportation, public services, to consumer electronics. In the manufacture of batteries, there are often product defects in the production process. This is due to the level of negligence of machines or humans. Usually, to check for product defects, it takes a person who is very skilled in visual inspection of the product. However, this has drawbacks such as a low level of accuracy and safety, less efficiency in identifying defects, and differences in perception between inspectors and other workers. Therefore, the authors develop an identification method to detect defective products using Deep Learning.

The results of this study indicate that during the training process, the performance of the CNN model shows an increase in accuracy, but the overall accuracy value of the model produces very low accuracy. The highest accuracy is on the 70:30 data partition and the learning rate of 0.0001 is 39%. However, the results of the training accuracy do not determine how precise the system is in detecting an object whether it is damaged or not.

Keywords: *Visual Inspection, Battery, Deep Learning, 2-Dimensional CNN.*