

## **ABSTRACT**

Batik is a traditional cloth and a heritage owned by the Indonesian people. Batik has been recognized by the world through the determination of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) as the intellectual cultural rights of the Indonesian people on October 2, 2009. Based on research from the IACI organization, there are 5,849 batik motifs recorded, so a system is needed that can help classify batik types. In this final project, an application system that can identify into six classes of batik types based on mobile applications will be designed with the aim of being easy to use and friendly to users. The selection of batik is obtained from the results of a questionnaire regarding the popularity and types of batik that seem familiar among Telkom University students. With the design of the system created, it can contribute to preserving the diverse batik culture in Indonesia.

In this final project, an application system called BatiQu will be designed that can identify different types of batik. BatiQu application is able to recognize and identify six types of batik namely batik Ceplok, Kawung, Megamendung, Nitik, Parang and Tambal. The BatiQu application uses Deep Learning with the CNN method using a selected architecture which will later be tested and the best results used to be implemented in the application. The preferred architectures for the CNN method are ResNet152 V2 and MobileNet V1. The Deep Learning process starts from the pre-processing, feature extraction and classification stages. From the Deep Learning process that has been carried out, it will then be implemented into the BatiQu application for retesting and seeing how accurate the system that has been made. The design of the BatiQu application is also implemented into the form of hardware such as boxes. The BatiQu box is designed in the form of a cube with a size of 12 cm long, 12 cm wide and 17 cm high made of wood.

From the tests carried out, it shows that the best architecture for the CNN method is the ResNet152 V2 architecture. This is based on the test results starting from the pre-processing stage, feature extraction to classification. Where the results obtained are worth 89.67% which indicates that the model system can run as designed. The results of Deep Learning testing are then incorporated into the mobile application and produce good performance and are suitable for use as a batik type identification application.

Keyword : Batik, Identification, Deep Learning, CNN, Application