CHAPTER 3
RESEARCH METHODOLOGY

3.1. Literature Study

This process is collecting and reading journals related to the classification of betta fish. All these journals as a reference for my project.

3.2. Collecting Sample Images.

The dataset for this project is 852 images of betta fish consisting of 3 types, namely Plakat, Halfmoon, Crowntail.Then from 852 images, 171 images were taken for validation. The final total of images used for training is 681 images and 171 images for validation

3.3. CNN

This research studies how the convolutional neural network works to classify the types of betta fish. The convolutinal neural network combines 3 architectural points, namely local receptive fields, shared weights, and spatial subsampling in the form of pooling. Convolution is a matrix that serves to filter. Furthermore, in the filtering process there are 2 matrix, namely the matrix on the input value and the kernel matrix. CNN has several layers that function to perform filters that have been set during the training process, namely Convolution layer, Pooling layer, and full Connected layer. This is the architecture of CNN

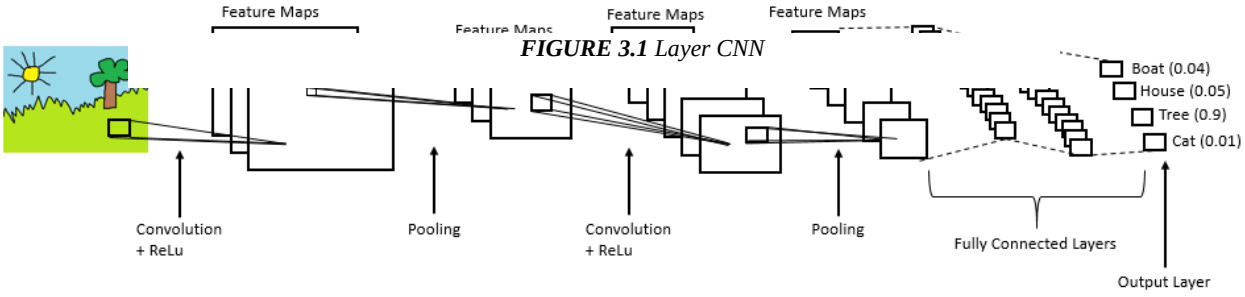

***FIGURE 3.1** Layer CNN*

3.4. Testing

The test will be carried out by testing the data of 50 betta fish images consisting of Crowntail, Plakat, and Halfmoon. The test will be carried out with different activations, namely Relu, Elu, and Tahn.

3.5. Analyze

Comparing the final accuracy obtained with 3 different activations, to find out which activation is the most suitable for this project.