

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

Based on the research results and discussion that have been presented, the following conclusions can be drawn:

1. The ear disease classification system using a CNN was built using MobileNetV2 with a Global Average Pooling 2D layer, a Fully Connected Layer (128 neurons), a Dropout Layer, and an Output Layer (1 neuron output with a *sigmoid* activation function).
2. The performance of the MobileNetV2 architecture in classifying ear diseases achieved a best accuracy of 83.1%, a best precision of 85.4%, a best recall of 90.4%, and a best F1-score of 84.9%.

5.2. Recommendations

Based on the results and process throughout the research, the following recommendations can be given:

1. Conduct experiments with epochs between 10-20 to find the optimal point for recall without decreasing accuracy.
2. Apply *fine-tuning* by unfreezing several of the final layers of MobileNetV2.
3. Test *learning rate* variations (0.001; 0.00001) and *scheduling*.
4. Compare with other architectures (ResNet-50, VGG16, EfficientNet).