

Universiti Teknologi MARA

**Shape Based Garden Bird Segmentation
using Edge Detection Technique**

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STUDENT'S DECLARATION

I certify that this report and the project to which it refers is the product of my own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

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ABSTRACT

Birds species identification from images is an important and challenging task. This project represents the preliminary study of bird recognition and focusing on three species of garden birds in Malaysia which is Frigatebird, Pomarine Jaeger and Caspian Tern. Birds are chose as they are much easier to monitor compared to other species. However, some might have problems especially ornithologists in identifying birds and sometimes removing the background of the image can be complex as identification itself. Therefore, this project proposed a technique to segment garden birds which is edge detection or specifically Canny Edge Detection. Canny is one of the mostly used technique because it performs better compared to other technique. The proposed technique will first acquire an image that is loaded from computer. Next the image will go through Canny's processes which is smoothing, finding the gradient in the x direction and y direction, non-maximum suppression and hysteresis. Last but not least, the result of the Canny's processes is shown. The final image is then tested using Area Overlap. Experimental results showed that each garden species obtain positive and satisfying result. Frigatebird achieved an average of 97.9525%, Pomarine Jaeger achieved 98.3648% and Caspian Tern achieved 98.0448%. As a conclusion, Canny is proved as a good technique to segment garden birds. As mentioned earlier, this project is a preliminary study so a few features can be added such as recognition of the garden bird species. This project is believe to able give a knowledge value for ornithologists on preliminary steps of bird detection and yet contribute better knowledge on garden bird species in Malaysia. In addition, few features can be considered to be added to this project which is recognition of the garden birds and also to develop it in a mobile application.

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