

# **OPTICAL AND IMAGE PROCESSING METHOD FOR COUNTING MIGRATORY RAPTORS**

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## **Abstract**

Every year, there are approximately 55 migratory species or 5 millions of migratory birds travelled along the Asia countries. However, the rapid urbanization has destroyed the habitat of the migratory birds. This has caused the attention of Asian Raptor Research & Conservation Network (ARRCN) and Malaysia Nature Society (MNS). The survey to calculate the populations of migratory raptors pass through Asia countries and Malaysia is carried out. They use direct visual or ground count method to measure the population of raptors. They will feel tired and easily lost their concentration when waiting for the migratory raptors for long period of time. Besides, if the raptors fly too close they are not able to count on it as their flying speed is too fast. Therefore, the accuracy of this ground count method is questionable. In order to overcome this problem, we proposed a remote sensing method to cover for it. We used the Digital Single Lens Reflex (DSLR) camera as a remote sensor to capture the image of the migratory raptors. After that, the image captured is downloaded to the computer and processed by our own developed system. The system will analysis the image and produce the amount of the raptors exist in the photo. This raptors' monitoring system has been validated with the photo count. The accuracy of the system would be 97.3%. The results show that the raptor monitoring system can effectively improved the ground count method. In future planning, this system might able to use for swift counting for the swift house or other conservation.

**Keywords: Image Processing; DSLR; Birds; Optical; Migratory Raptors**