

Swiftlet Sound Identification using Vector Quantization and Minimum Distance Classifier

Siti Nurzalikha Zaini Husni Zaini and M. Z. Ibrahim

Faculty of Electrical and Electronics Engineering
University Malaysia Pahang
26200 Pekan, Pahang
MALAYSIA

Email: snzhz.ct89@gmail.com and zamri@ump.edu.my

Abstract—There are high demand on swiftlet nest as it benefits in health, cosmetic and food industry. Therefore, the study about technologies and method to increase their production in swiftlet farming using sound technology is needed. In the real situation, the classification of swiftlet sound is evaluated by human expert using try and error method at swiftlet house. However, this required high level of human skill and prone to mistake. In this work, we present an automatic swiftlet sound identification using vector quantization and minimum distance classifier. Firstly, swiftlet sound extracted using mel-frequency cepstral coefficient. Secondly, vector quantization with codebook size is 8,16,32 and 64 and minimum distance classifier was used for the sound classification. Finally, performance of the system was measured by in three type swiftlets, baby, adults and colony type. It shows that, the highest identification was ?? when using what and what linear predictive cepstral coefficient features change to mel frequency cepstral coefficient additional delta-acceleration features.

Keywords—*swiftlet; mel frequency; linear predictive; vector quantization, minimum distance classifier.*

Original habitat of swiftlets is at the cave with nature environment. To mimic their original environment, entrepreneurs make swiftlet house by consider environmental factors such as aroma, light, temperature, humidity and sound [1]. The swiftlets character is sensitive toward sound. Sound is the main factors swiftlet come enter to the swiftlets house [2].

Within more this a decade, entrepreneurs explored various methods and new technology to increase production of swiftlet nest. Previously, sound that produced at swiftlets husbandry premise actually is produced from recording audio sound bird voice. Therefore, the research and development about vocalization of swiftlets attraction needed to develop swiftlets industry. This is used for industry to attract swiftlets enter and build their nests in man-made house. The income can give benefits for good economic and healthy. Nowadays, bird house for swiftlets farming usually developed and equipped with recorded sound of chirping and mating from cave (natural habitat) to attract swiftlets to enter and build nest. These sounds just taken using trial and error method [2] without analysis of sound involve in signal to attract the swiftlets. This method is sometimes successful to attract the swiftlets but sometimes there