**Thai Banknote Image Recognition**

1. **Introduction**

Nowadays, more than two million currencies are used by several countries around the world. One object representing the currency is a banknote that many countries used for purchasing, exchanging, and indicating income that people obtained. Most of the population has normal bodies to identify and separate the quantity or price of the banknote. However, there are approximately 39 million people around the world blinded. Blindness affects a large number of populations to lose their vision which is one of the significant parts of our body. So, people cannot even separate the price of banknotes due to lacking abilities to identify, locate, detect, and recognize the environment object and the sight they saw is only a black image. In addition, 80% of blinded people is lived in the continue developing country and using of money is also continue changing; Thailand is one of them.

Thailand is a country in the South-East Asia Region with an estimated population of 66 million. By a large number of populations in Thailand, there are approximately 369,013 people who are blinded. However, everyday life in Thailand is challenging for blind people because of unaccommodated pavement and walking streets. Therefore, blindness is increasing this challenge as well as banknote recognition that they do not know although touching it by hand. Thailand banknotes are issued into five denominations including 20 Baht, 50 Baht, 100 Baht, 500 Baht, and 1000 Baht with differentiate features whether sizes, colors, identified numbers, watermarks, textures as well as generic value. Currently, blind people keep the different value banknotes with distributed pocket in order to identify them. However, they have must be assisted by the third person to classify it by telling them. The Artificial Intelligence (AI) improvements and technology developments are enabled to use in advanced technical performance in order to recognize the actual value of each banknote or currencies for making blind people acknowledge.

The banknote recognition has several methodologies to detect and recognize whether neural networks, Markov model, Principal Component Analysis (PCA), Speed-Up Robust Features (SURF), K-Nearest Neighbor (KNN), or Fuzzy Logic.

Therefore, the main objective of this research is to develop the computer system in order to recognize the actual value of each banknote for blind people. Blind people would acknowledge the value of banknote they had. In addition, normal people can also use it with the developed technology for identifying a banknote such as automatic teller machine (ATM).

1. **Literature Review**

**References**

* https://www.mdpi.com/1424-8220/17/1/184/htm
* https://koreascience.kr/article/JAKO201918440610441.pdf - https://koreascience.kr/article/JAKO201918440610441.view?orgId=anpor&hide=breadcrumb,journalinfo
* https://www.ijstr.org/final-print/aug2019/Implementation-Of-Template-Matching-Fuzzy-Logic-And-K-Nearest-Neighbor-Classifier-On-Philippine-Banknote-Recognition-System-.pdf
* https://www.mdpi.com/1424-8220/17/2/313/htm
* <https://jcst.rsu.ac.th/files/issues/V2N2/2012_2_2_full_120202_20150908_1858.pdf>
* https://www.mdpi.com/1424-8220/16/3/328/htm