

RUPEELENZ: SRI LANKAN CURRENCY DETECTION TOOL FOR VISUALLY IMPAIRED USING MACHINE LEARNING

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ABSTRACT

Despite the rise of online payments, physical money, commonly referred as money, is still regarded as the main exchange tool. The ability to locate money for daily needs is not a problem for a normal individual, but it is for visually impaired or blind people. To make it simpler for individuals who are blind to identify money notes, Sri Lanka has included a feature known as braille dots. Unfortunately, after time and with use, these braille dots become worn out. The objective of this study is to put into practice, a Sri Lankan currency identification system for the visually impaired individuals.

To conduct the research, the author reviewed existing studies on currency recognition as well as potential approaches for precisely identifying currency. The author additionally conducted formal interviews with a few visually impaired individuals and relevant experts as part of the requirement elicitation process to help clarify the aims and objectives. As a result, the author decided to carry out the research utilizing the weighted average ensemble technique CNN architecture.

The author tested several pretrained architectures for the model building component before settling on DenseNet121, MobileNetV2, and ResNet50V2 for the final assembly. These were chosen based on the accuracy level and file size, with the final model integration being done on and produced as an android application. The model achieved a test accuracy of 90.36%.

Subject Descriptors: Image Classification, Ensemble Learning, Weighted Average Ensemble Approach, CNN, Real-time Recognition

Keywords: Currency Detection, Visually Impaired, Sri Lanka