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PHYSICAL QUALITY ESTIMATION OF RICE

BY

IMAGE PROCESSING

A PROJECT REPORT PRESENTED BY

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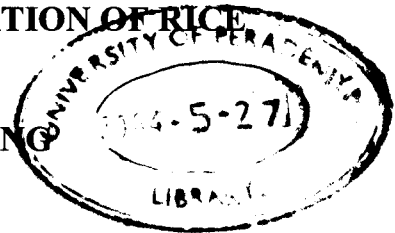
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In South Asia rice is the staple food. In Sri Lanka rice is not only consumed but also produced in large scale to cater to the needs of the country. Self-sufficiency in rice is regarded as a prime target of Sri Lanka's economic and agricultural development in the 21st century. However, it is important to note that while attempts are taken to upgrade rice production, measures should be taken to maintain and upgrade the quality of rice produced.

There are various parameters of rice that are used to categorize them such as; the variety, growing season and time and postharvest processing method followed. However, the final quality of rice at the consumer's end is mainly determined by visual physical parameters such as the size, shape, color, and the presence of broken grains. At present, these parameters are examined and estimated through observation and there is no repeatable measurement system in use to estimate the visual quality parameters of rice.

The work presented in this thesis uses digital photographs and analytical capacity of computers to provide quantitative quality measures that can be used in estimating the quality of rice. Windows paintbrush was used to remove unnecessary spaces and scrutinize photographs taken by a digital camera. A Visual Basic program was used to analyze the images of rice grains and obtain several physical properties pertaining to rice grains.

The developed program was capable of counting the number of complete and broken grains, estimates the ratio of broken grains in a given sample among other measures such as the grain shape and size. This program could also provide average color or rice grains and moreover, the percentage brown cover in the case of red rice.