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**USE OF IMAGE ENHANCEMENT TECHNIQUES TO ASSIST
DIAGNOSIS OF HEART ENLARGEMENT**

A PROJECT REPORT PRESENTED

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ABSTRACT

USE OF IMAGE ENHANCEMENT TECHNIQUES TO ASSIST DIAGNOSIS OF HEART ENLARGEMENT

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Current medical practice in the differential diagnosis of diseases and therapy require that standard medical tests be performed accurately, efficiently and rapidly. Some of the most common tests such as the red cell count (RBC), white cell count (WBC), Hemoglobin (Hgb), Hematocrit (Hct) are mostly automated by the use of sophisticated equipment (eg. Coulter Counter Model – S, Technicon Auto-Analyzer).

In addition to medical tests, X-Ray images have been extensively used by medical practitioners to assist their diagnosis. Medical practitioners use X-Ray images to observe the organs and bones to estimate their relative size in cases such as patients with enlarged heart.

The diagnosis of enlarged heart is based on its size compared to the width of the thoracic cavity. This estimator is heavily dependent on the visual clarity of the image as well as the experience of the practitioner.

In this study, an attempt is made to develop an image processing algorithm to automatically measure the Cardio Thoracic Ratio (CTR) in TCX images. This automatic heart enlargement detector is a consistent measuring tool for a medical

practitioner and it will assist him in diagnosis of enlarged heart by providing quantitative estimates of the CTR.

The software system developed requires that X-Ray image be digitized and fed to the computer. Once activated, it will perform analysis automatically and provide the user an estimate of the relative size of the heart compared to the thoracic cavity. The computer also provides a visual output of the X-Ray image indicating the maximum width of the heart.