**ACKNOWLEDGEMENT**

The sense of contentment and elation that accomplishes the successful completion of our task would be incomplete without mentioning the names of the people who helped in accomplishment of this Mini-Project, whose constant guidance, support and encouragement resulted in its realization.

First and foremost, I would like to express my sincere words of gratitude and respect to the organization Government Engineering College, Talakal, for providing me an opportunity to carry out mini project work.

I would like to take this opportunity to thanks our principal, Dr. Virupaxi Bagodi for providing me with serene and healthy environment within the college, which helped me to carry out the work easily.

I would like to express my deepest sense of gratitude to our H.O.D, Dr. Viresh for providing me some necessary facilities for the completion of Mini-Project.

I am very grateful to faculty, Swati Chavadi for her invaluable guidance and encouragement.

Last but not the least; I extend my thanks to all the faculty members of Computer Science Department, GEC Talakal, who have encouraged me throughout the course of bachelor of engineering.I am very grateful to my parents and well-wishers for their continuous moral support and encouragement.

Bindu Halli (2LG22CS008)

Meghana (2LG22CS020)

Sahana Davanageri (2LG22CS035)

Sinchana H (2LG22CS046)

**ABSTRACT**

A kidney stone (renal calculi) disease is a common disorder worldwide with an obvious increase in incidence over the past 20 years. Every year, millions of people visit health care providers and emergency rooms for kidney stone-related complications. The causes for the kidney stone includes food habits, family history of kidney stones, metabolic disorder, high level of calcium and uric acid metabolism. The main reason for kidney stone is the formation of physiochemical substances in the urinary system. The highly concentrated urine with salts is the main cause of the stone. The crystals can either excreted or grow into stone due to the stone-promoting or stone inhibiting agents. Kidney stones are caused by various organic and inorganic substances such as calcareous, uric acid, cysteine, struvite and ammonium acid combined with proteins. Sometimes the metabolic changes, hyperparathyroidism, distal renal tubular acidosis, malabsorptive syndrome, obesity and diabetes severity can also cause the kidney stone formation. Kidney stones are deposits of solid crystals, minerals, and acid salts that stick together in the urine. They are often called as renal calculi. Current estimation is that there are half a million people suffering by this disease every year. They can block the flow of urine and cause infection, kidney damage or even failure. During surgical processes, it is vital to recognize the accurate and precise location of kidney stone.

**TABLE OF CONTENTS**

**Sr.No. Chapter Names Page.no**

**Acknowledgement i**

**Abstract ii**

**Table of Contents iii**

**List of Figures iv**

**1 Introduction 1**

1.1 Image processing 2

1.2 Open CV Concept 2

1.3 Problem Statement 3

1.4 Objective of the Project 3

**2 Literature Survey 4**

# **3 System Model 5**

# **4 Requirements Specification 6**

# 4.1 Software Requirments 7

# 4.2 Hardware Requirement 7

# **5 System Design 8**

**6 System Implemention 9**

6.1 Built in function 10

**7 Result 11**

7.1Kidney with Stone 11

7.2 Kidney without Stone 12

**Conclusion 14**

**References 15**

# 

# 