**DEVELOPMENT OF SOFTWARE FOR FLOWER RECOGNITION USING IMAGE PROCESSING TECHNIQUE**

**Rough Draft of Thesis**

**Submitted to the Punjab Agricultural University**

**in partial fulfillment of the requirements**

**for the degree of**

**MASTER OF TECHNOLOGY**

**in**

**COMPUTER SCIENCE AND ENGINEERING**

**(Minor Subject: Information Technology)**

**By**

**Gurleen Kaur Marwa**

**(L-2013-AE-149-M)**

**School of Electrical Engineering and Information Technology**

**College of Agricultural Engineering and Technology**

**© PUNJAB AGRICULTURAL UNIVERSITY**

**LUDHIANA-141004**

**2015**

**CONTENTS**

**Chapter No. Topic Page No.**

1. **INTRODUCTION 1-5**
   1. Digital Image and its features 3
   2. Objectives of This Study 5

**2 REVIEW OF LITERATURE 6-8**

**3 MATERIALS AND METHODS 9-30**

* 1. Proposed Software 9

3.2 Software development Life Cycle (SDLC) 10

3.2.1 System Analysis 10

3.2.2 Feasibility Analysis 11

3.3.2.1 Technical Feasibility 11

3.3.2.2 Scheduled feasibility 11

3.3.2.3 System Feasibility 11

3.3.2.4 Economic Feasibility 12

3.3.2.5 Operational Feasibility 12

3.2.3 Software Requirement Specification (SRS) 12

3.2.4 Designing The Software Architecture 14

3.2.4.1 Flow Chart 14

3.2.4.2 Data Flow Diagram (DFD) 16

3.2.5 Developing The Software 17

3.2.6 Testing The Software 17

3.2.7 Implementation 18

3.3 The Technologies Used In Development of Software 19

3.3.1 JAVA 19

3.3.1.1 Scope Of Java 19

3.3.1.2 Advantages Of Java 19

3.3.1.3 Features Of Java Language 19

3.3.1.4 Java Virtual Machine (JVM) 20

3.3.1.5 Java Database Connectivity (JDBC) 20

3.3.2 Eclipse 21

3.3.3 Packages 22

3.3.3.1 OpenCV Library 22

3.3.3.2 Java Script 23

3.3.3.3 Java Swings 24

3.3.4 MYSQL 26

3.4 Image Processing Techniques 27

3.4.1 Comparison On Basis Of Color Feature 28

3.4.2 Comparison On Basis Of Shape Feature 29

3.4.3 Comparison On Basis Of Pistil/Stamen 30

**4 RESULTS AND DISCUSSION 31-37**

**5 SUMMARY 38**

**REFERENCES 39-40**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**LIST OF TABLES**

**Table No. Title Page No.**

1 Comparison Of Recognition Rate 36

**LIST OF FIGURES**

**Figure No. Title Page No.**

3.1 [Stages of SDLC](#_Toc421470831) 10

3.2 [Flowchart Of Proposed Project](#_Toc421470832) 15

3.3 [Data Flow Diagram For User](#_Toc421470833) 17

3.4 Block Diagram of [Image Processing Techniques Used In This Software](#_Toc421470834) 27

3.5 [HSV Color Wheel](#_Toc421470835) 28

4.1 [Splash Screen Of The Software](#_Toc421470836) 31

4.2 [Login Screen Of The Software](#_Toc421470837) 32

4.3 [Registration Screen Of The Software](#_Toc421470838) 32

4.4 [Welcome Page For The User](#_Toc421470839) 33

4.5 [Edit Profile Screen Of The Software](#_Toc421470840) 33

4.6 [Upload Image Screen Of The Software](#_Toc421470841) 34

4.7 [Admin Approval Screen](#_Toc421470842) 34

4.8 [Output Screen Of The Software](#_Toc421470843) 35

4.9 [Main Screen Of Admin](#_Toc421470844) 35

4.10 [Forget Password Screen](#_Toc421470845) 36

4.11 Comparison Of Proposed Approaches On Basis Of Recognition Rates 37 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ABBREVATIONS**

3D : Three Dimensional

DDS : Design Document Specification

DFD : Data Flow Diagram

GIF : [Graphics Interchange Format](http://en.wikipedia.org/wiki/Graphics_Interchange_Format)

JPEG : Joint Photographic Experts Group

PHP : Personal Home Page Hypertext Processor

PNG : [Portable Network Graphics](http://en.wikipedia.org/wiki/Portable_Network_Graphics)

RGB : Red Green Blue

SDLC : Software Development Life Cycle

SQL : Structured Query Language

SRS : Software Requirement Specification

UI : User Interface

HSV : Hue Saturation Value

HSB : Hue Saturation Brightness

OOP : Object Oriented Programming

OpenCV : Open Source Computer Vision

BSD : Berkley Software Distribution

GPU : Graphic Processing Unit

RDBMS : Relational Database Management System

API : Application Program Interface

DIE : Difference Image Entropy

JDBC : Java Database Connectivity

JVM : Java Virtual Machine

GUI : Graphical User Interface

ODBC : Open Database Connectivity

IDE : Integrated Development Environment

SDK : Software Development Kit

AWT : Abstract Window Toolkit

OS : Operating System

HTML : Hyper Text Markup Language