PROJECT ABSTRACT

Optical Character Recognition

An Image Processing GUI Application based on OpenCV

Author:
AMIT KUMAR THAKUR
B.Tech ECE
7$^{\text{th}}$ Semester
Roll No. 7EC13

Project Guide:
KALYAN ACHARJYA
Assistant Professor

NISHAT ANJUM
Assistant Professor

Department of Electronics & Communication

School of Engineering & Technology

Jaipur National University

1   Introduction

Optical Character Recognition (OCR) is an electronic conversion of scanned images of handwritten, typewritten or printed text into machine-encoded text. OCR is a field of research in pattern recognition, artificial intelligence and computer vision.

This project proposes an application for desktop computer which gives a complete graphical user interface to input image file, control all the processes of image manipulation and artificial neural network, and to produce the final recognized text result with accuracy details.

This application will be developed using open source tools– OpenCV libraries (for image processing and pattern recognition) and C++ - Qt framework (for GUI).

2   Design Concept

This project will be a cross-platform GUI software application which will be having a user-friendly interface to get source image, process it on the screen and produce the recognized output characters into a text file and screen.

2.1   Tools Used

This project will be developed using open source tools:

2.1.1   OpenCV

This is a popular Computer Vision C++ library.
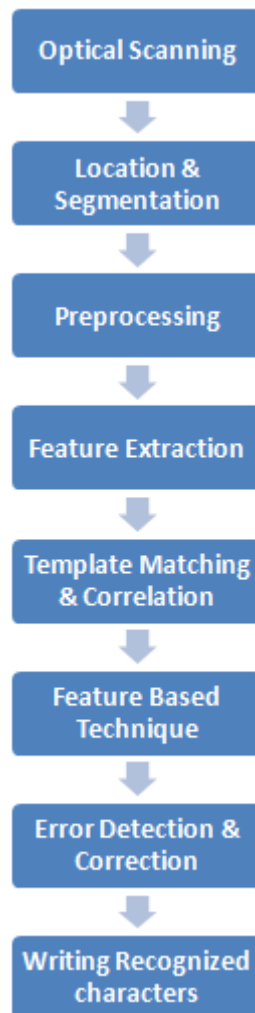
2.1.2   Qt GUI Framework

This is widely used C++ framework to develop Graphical User Interface (GUI) for computer and mobile phone applications.

2.1.3 C++ Language

C++ is a statically typed, free-form, multi-paradigm, compiled, general-purpose programming language.

2.2 Methodology

Here is the flowchart of techniques and algorithm used:

3 Applications

It is widely used as a form of data entry from some sort of original paper data source, whether documents, sales receipts, mail, or any number of printed records. It is a common method of digitizing printed texts so that they can be electronically searched, stored more compactly and displayed on-line.

Here are the main applications:

1. Automatic number plate recognition

2. Make electronic images of printed documents searchable, e.g. Google Books

3. Converting handwriting in real time to control a computer (pen computing)

4. More quickly make textual versions of printed documents

5. Data entry for business documents, e.g. check clearing

6. Importing business card information into a contact list