Software Design Document

Smart Notes

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1. Overview

This software product is tool for converting Handwritten notes to required format to user.

Handwritten notes are prepared by every student but they are tough to handle. They put forward various problems in front of us like lack of portability, are non-editable, unclean, less readable etc. Also, they need to handled physically , they are very tough to share among peer s, and require external labor to maintain these notes for teachers to share it to students.

2. Proposal

Smart-notes is a tool which can be used to convert handwritten notes into PDF/DOC files which can be used just as any other text document.
Smart-notes detects text in handwritten notes with diagrams, figures etc, identifying them on the basis of font size, colour etc. and converting them into a text PDF/DOC which can be used as text document.

We propose to contribute this product to students which can convert the whole handwritten notes document in the form of scanned images and convert it to text using **Convolutional neural networks, NLP** and **Deep learning** techniques.

This document covers the High level design of the project.

This document addresses the following goals and functional requirements for designing 'Smart Notes'.

- Takes input as scanned images in format of pdf.
- Preprocess the images for basic characteristics like font, color etc.
- Convert text in formatted document with headings ,figures etc

- Provides output document as PDF /DOC.

3. Goal

The main goal of the project is to capture/get the image of notes in the input, detect and recognize them as texts, diagrams and figures. Further, the recognized images of texts are converted into paragraphs and headings, so that less confusion is maintained for an individual who is studying with them. It also include to help the lecturers to improve and organize the process of track and manage their subject notes reaching in clear and concise manner. Also, Class can share these notes among them and help each other for cumulative growth of the batch

The main objective of introducing the Smart Notes is to make notes of students:

- Convenient to maintain
- Readable
- Adaptive for updates
- Clean , clear and concise
- Portable
- E- notes

Smart notes is a necessity for every student either studying in college or school. And we wish to remove the hassle once and for all.

3.1 Product Scope

This product will be used by all individuals who need to convert their notes to text document .The initial objective is to design a basic command line tool which takes input the file path , converts the document and saves it directory in which file was saved with same name.

Scope extension

We plan to extend it to a mobile app where it will process the document on the server and return the converted file.

2. Design Overview

Modules involved:

1. Input module :
   This module take input in two forms, as a single image or set of images compiled into a pdf. The decision is made by the input module what input it got and gives option to user to choose for the file type it wants the output in.

2. Preprocessor:

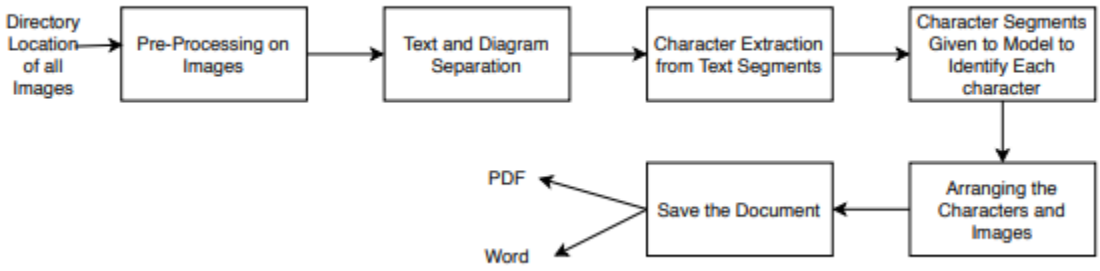
Preprocessor preprocesses the images for removal of unnecessary elements in the images, converts the set of images into separate images and send it to data identification and extraction unit one by one.

3. Data processor:
   Processes the images and converts into notes for every image and makes it as page with figures , diagrams and text. They are arranged heading wise and justified in proper format.

4. Output module:
   Output module combines the pages and merges them into single document .
   Converts them into required file type asked by user.

5. Core Architecture

1. Process flow chart



2. Architecture: