Project Proposal

SE 2112 - Software Project

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# **Project Name: DIGITEYES**

**Introduction**

The goal of this project is to develop a command line tool for accurately recognizing a single handwritten digit from an input image. The input image is guaranteed to contain only a single digit, with no other objects or elements present. To accomplish this, the system employs several image processing techniques such as thresholding, edge detection, and contour analysis to isolate the digit from the background and extract relevant features such as the shape, size, and orientation of the digit. The system is designed to be robust and accurate, despite potential variations in handwriting styles, noise, and other factors that can affect the accuracy of digit recognition.

**Objectives**

The objective of the project is to develop a command line tool that can accurately recognize a single handwritten digit from an input image. The tool should be able to handle images with different color backgrounds and written digits of varying sizes, styles, and orientations. The image can be black and white or the number color and the background color may differ.

**Target Customers**

* Healthcare
* Logistics and Transportation
* Education
* Retailer & e-Commerce

**Application Features & Description**

* **Edge Detection:** This is useful for recognizing digits which has specific shapes.
* **Convolution:** It can be used to extract edges, corners and texture from an image.
* **Grayscale Conversion:** It can be used to simplify the image which makes it easier to analyze the image.
* **Image Resizing:** It can help standardize the input size and aspect ratio of the image.

**Models, Tools, and Resources**

* **Agile**: The Agile methodology is an iterative and incremental approach to software development, which means that the development process is broken down into small, manageable tasks or features that are developed and tested in short cycles or sprints.
* **Programming Language**:
* Java
* **IDEs:**
* Visual Studio Code
* Eclipse
* **Resources:**
* Java The Complete Reference book by Herbert Schildt.
* Google
* YouTube

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| --- | --- | --- | --- | --- |
| **Tasks** | **April 1** | **May 1** | **June 1** | **July 1** |
| **Proposal** | 20  2 |  |  |  |
| **Requirements** |  |  |  |  |
| **Learning and designing** |  | 25 |  |  |
| **Coding** |  | 35 |  |  |
| **Final Testing** |  |  |  | 10 |

**Proposed Timeline**

Duration of time

**Deliverables**

* Source Code
* Document
* Jar File
* User Manual

**Challenges**

* Time Constraints
* Algorithm Implementation
* Handwriting Recognition
* Image Processing