Doodle Classifying System

Vision Scope Document

Version 1.0

Team: DARS

- Devika Baid (207221)
- Aryan Srivastava (207210)
- Ramakrishna Polisetty (207160)
- Srijit Paul (207173)

Doodle Classifier		Version 1.0
Vision		Date : 07.09.2022
Doc No. DARS/DC/001		

Revision History

Date	Version	Description	Author
07.09.2022	1.0	Original Version	Team DARS

Doodle Classifier		Version 1.0
Vision		Date : 07.09.2022
Doc No. DARS/DC/001		

Contents

Doodle Classifier		Version 1.0
Vision		Date : 07.09.2022
Doc No. DARS/DC/001		

Vision

1. Introduction

1.1. Purpose

To help children and illiterate people to learn new alphabets and words easily,(primarily English) with the help of machine learning and deep learning.

1.2. Scope

This application will provide a web-based personalized service for each respective user. The web application software user interface will be able to draw on their mobile screen or with the help of a mouse to draw alphabets and words and our application will recognize in handwritten format and show the accuracy compared to the actual alphabet and show the result. It will be user friendly to the kids and people who are new to any kind of digital platform.

1.3. Definitions, acronyms and Abbreviations

ML – Machine Learning
NN – Neural Network
DARS – Development of Alphabet Recognition Software

1.4. References

Stack overflow, research from Google and YouTube.

1.5. Overview

The application uses neural networks to determine the character or number drawn on the canvas. The application will give scores on accuracy to the user and thus help them learn. The classifier can be used to convert image to text as a perfect use case. At the same time it can be used to classify doodles as a leisure activity.

2. Positioning

2.1. Business opportunity

The world of education is heading towards software based learning. Thus creating a business opportunity for a platform like this. The software will help kids to learn to write and draw, thus making learning a language a lot easier. The software platform can be made a paid service.

2.2. Problem statement

Help children in learning new languages. Taking education online and interactive using machine learning.

2.3. Product position statement

The product will be designed and scaled so that it can be used by any person with a smart device operating on Android/Windows/IOS/Mac OS. The pricing of the product will be affordable for the middle-income group.

3. Stakeholder and User Descriptions

3.1. Market demographics

The target customers for this product will be kids under age of 5. The cost product will be 500 rs/month, to make the pricing competitive and appealing to the general public.

3.2. Stakeholder summary

Stakeholder	**Responsibility**
Application Developer	To develop the application and keep it up to date by providing new updates with emerging technologies.
System Designer	To optimize the current neural net and find out ways to make it more effective with envisioning futuristic technologies.
Database Manager	To handle the database effectively, keep the user information safe, and also analyze the data to improve the accuracy of the neural net.
Software Testing engineers	To test the usability of the application and report to the application developer if any error is found.

3.3. User Summary

This application contains multiple tabs where the user clicks on the basis of his/her requirement. The system understands their requirements and acts accordingly.

3.4. User Environment

Can be operated in all the major browsers, including Chrome, Firefox, Safari, Opera, as well as iOS for Chrome and Safari and Android browsers.
Graphic card is required to train the neural network that can then be run on any device with a web browser.

3.5. Stakeholder profiles

Stakeholders consist of developers and administrators. They will be required to maintain the site and the database of the system.

3.6. Key stakeholder or user needs

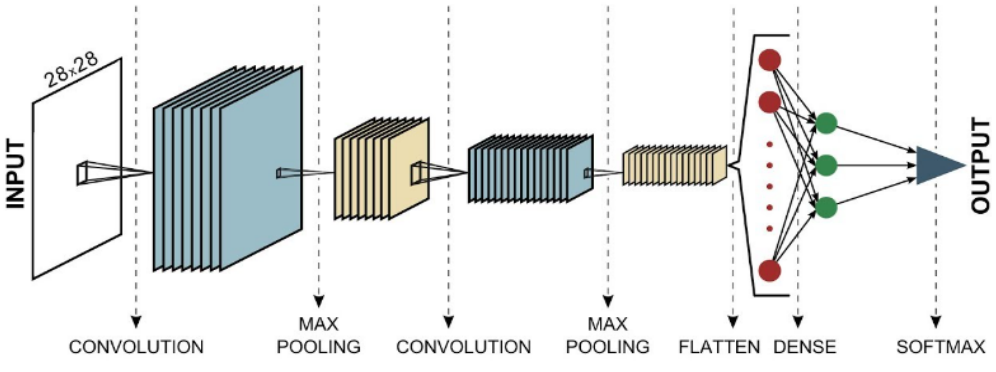
The company seeks profit in educating the population. Satisfaction of customers is the basic requirement for the stakeholders.

3.7. Alternative and competition

Quick Draw.

4. Product overview

4.1. Product perspective



The system has a web api for detection of characters and numbers. The api is utilized by the web based application.

4.2. Summary of capabilities

i) User friendliness
ii) Easily integrated in the real world.
iii) Huge servers side back and documentation for usage.
iv) Capable API for text recognition in images.

4.3. Assumptions and dependencies

- In using the mouse and touch screen it is assumed that users can draw by using them.
- It is assumed that speech impaired users will not be using the speech to text feature
- The default language for the Doodle Classifier will be US English . It is assumed that users who cannot speak and write in English will not be using the text to speech features in the system , at least initially .
- It is also assumed that the internet connectivity on the users device will be available all the time while using the application.

4.4. Cost and pricing

Variable in proportion to the market.

5. Constraints

Capacity: The application is auto scaling to support any number of users.
Accuracy: The accuracy of the model is subjective and depends upon factors such as number of uploaded images and time invested in training the neural net.

6. Precedence and Priority

The application will be web based . The updates subsequently will also be done for the platforms.

7. Other product requirements

7.1. Applicable standards

Internet connectivity.

7.2. System requirements:

Any web browsers which support HTML5 and javascript.

7.3. Performance requirements

None

8. Documentation requirements

8.1. User Manual

The user manual can be accessed on the application and gives a complete overview of the application and helps the user learn how to use the app.

8.2. Online Help

The users can email our company if they face any difficulties with the application and we will respond within 24 hours.

8.3. Installation Guides, Configuration and readme file

The application can run directly on the browser. Thus requiring no installation or configuration.

8.4. Labeling and packaging

Developers must correct the errors in the code in real time. This is essential for preventing the application from crashing in real time due to some ambiguous behavior