

1. Introduction

1.1 Purpose

a) The purpose of this document is to provide a comprehensive view outlining the functional and non-functional requirements of our automatic test checking product. This document serves as a blueprint for the development team, guiding them in the design, implementation, and testing phases of the product lifecycle.

b) The intended audience for this SRS documents includes:

Stakeholders: Clients, investors, and other interested parties who require a detailed understanding of the product's features, functionalities, and scope.

Project Managers: Individuals overseeing the development process, ensuring that the project stays on track and meets its objectives.

Development Team: Software engineers, architects, and developers who will be responsible for implementing the requirements outlined in this document.

1.2 Scope

a) The automatic test checking product will be produced by the software engineer Chen Jiaxin.

b) The automatic test checking product can automatically check the test with the right answer and provide the test results.

c) The software can be used by teachers, professors, and instructors in schools, colleges, and universities to grade tests and assignments across subjects and grade levels. The benefit of the software is that it can save time for educators

by automating the grading process, allows for quick turnaround on assessments, provides consistent and unbiased evaluation, and enables teachers to focus more on personalized instruction and student support. The objective is to enhance efficiency in grading procedures, ensure fairness and consistency in evaluation practices, and improve overall teaching effectiveness by freeing up time for educators to engage more with students.

1.3 Definitions, acronyms, and abbreviations

OCR-Optical Character Recognition

1.4 References

None

1.5 Overview

a) The rest of the SRS is the overall description of the software product-Automatic Test Checking System.

b) The SRS is organized as the standard format given before.

2. Overall description

2.1 Product perspective

The product will be available as a stand-alone App or hosted on an existing mature App, with the ability to call the camera device on the phone. Inside the system, there are modules for image and text processing.

2.1.1 User interface

Users can take a photo by clicking on the photo button in the application interface, then click on the upload button to upload the test, and finally, they

can also view the test results.

2.1.2 Hardware interface

The product can call the phone's camera hardware.

2.1.3 Software interface

The product needs to have an interface to sophisticated image and text processing software.

2.2 Product functions

a) The product allows users to input test questions and assessment materials into the system through photos.

b) The product can automatically grade student answers based on predefined criteria and grading rubrics.

c) The product can generate detailed feedback reports for users, highlighting correct answers, areas for improvement, and overall performance metrics.

d) The product is able to prioritize data security and privacy.

2.3 User characteristics

Users can be any individual regardless of the educational level in an instructional relationship, but students who are too young for this product may need to be assisted by a parent in this regard.

Users don't need any experience, just the ability to operate a basic cell phone.

Users are also free of technique expertise.

2.4 Constraints

a) Hardware limitations

The pixel level of the camera may affect the final result.

b) Interfaces to other applications

Calling other applications may affect the overall speed of operation

c) Algorithm limitations

The capability of the image processing algorithm may affect the accuracy of the results.

2.5 Assumption and dependencies

The operational efficiency of the product is affected by the operating system and computing power of the device.

3. Specific Requirements

3.1 External interface

The product's interface to the camera needs to meet the appropriate ISO standards.

3.2 Functions

a) Users shall be able to create tests by inputting questions, setting grading criteria, and defining parameters such as time limits.

b) Users shall be able to submit their responses to tests through the application platform.

c) The system shall automatically grade student responses based on predefined criteria and grading rubrics.

d) The product shall generate feedback reports for users, highlighting correct answers, areas for improvement, and overall performance metrics.

3.3 Performance requirements

The product should respond to user actions, such as logging in, creating tests, and submitting responses, within 2-3 seconds.

Automated grading processes should be completed within a reasonable timeframe, with a target of grading tests containing up to 100 questions in less than 1 minute.

The product should maintain high availability, with a minimum uptime of 99.9% over a 30-day period, ensuring uninterrupted access for users.

3.4 Software system attributes

3.4.1 Reliability

The product must maintain 99.9% uptime over a 30-day period, ensuring uninterrupted access for users.

3.4.2 Availability

The product must be available 24/7, with a target uptime of 99.9% over a month. During peak usage, it should support at least 1000 concurrent users without significant performance degradation. Technical support should be accessible during standard business hours, responding to inquiries within 24 hours.

3.4.3 Portability

The product should be accessible across multiple platforms and devices, including desktop computers, laptops, tablets, and smartphones. It must be compatible with web browsers and operating systems such as Windows, macOS, iOS, and Android.