Software Requirements Specification for Chess Connect: Online tools combined with on-board vision to improve and share your game

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Table of Revisions

Table 1: Revision History

Date	**Developer(s)**	**Change**
2022-10-04	Jonathan Cels	Template creation and document formatting
date	name	change

1 Units, Terms, Acronyms, and Abbreviations

1.1 Table of Units

Throughout this document SI (Système International d'Unités) is employed as the unit system. In addition to the basic units, several derived units are used as described below. For each unit, the symbol is given followed by a description of the unit and the SI name.

symbol	**unit**	**SI**
V	electric potential	volt
A	current	ampere
Ω	resistance	ohm
s	time	second
°C	temperature	centigrade
J	energy	joule
W	power	watt ($\mathrm{W} = \mathrm{J\,s^{-1}}$)

1.2 Abbreviations and Acronyms

symbol	description
A	Assumption
DD	Data Definition
GD	General Definition
GS	Goal Statement
IM	Instance Model
LC	Likely Change
LCD	Liquid Crystal Display
LED	Light-Emmitting Diode
MCU	Micro Controller Unit
PS	Physical System Description
R	Requirement
SRS	Software Requirements Specification
T	Theoretical Model

1.3 Mathematical Notation

1.4 Terminology and Definitions

2 Introduction

2.1 Document Purpose

2.2 Characteristics of Intended Reader

The document is written with the purpose of guiding development for the Chess Connect team. The intended readers of this document are the developers of Chess Connect, Dr. Spencer Smith, and Nicholas Annable, the teaching assistant assigned to this project. The document is thus written for an audience that is well-versed in formal specification at a university level. This includes models, diagrams, and mathematical notation. Readers should also have a university-level understanding of electrical circuit knowledge.

2.3 Characteristics of Intended User

2.4 Stakeholders

This project will assist chess players of any level that are looking for a tool to help them learn and study the game. For beginners, the board serves as a learning tutorial and a general introduction to the game, while intermediate and advanced players can use the engine move recommendations to study new lines, puzzles, and specific positions. In addition to chess enthusiasts, this project will also be relevant to chess tournament organizers looking for a method to easily broadcast and share their games online in real-time.

3 Problem Description

4 Assumptions

5 Constraints

6 Scope

The system is called Chess Connect, and will include a software application and physical hardware device. The hardware will take the form of a chess set, and will collect and relay move and piece data. The device will convey the best moves for the specific board position, and will convey legal moves for specific pieces.The device will be connected to the software application, relaying and receiving relevant data. The software application will model and track the physical device, and will broadcast the data in an accessible format. The application will be constrained to a 2-dimensional model of the hardware device, showing a top-down view of the game.

In-scope items for the system include the following:

1. Modeling and tracking a chess game played using the Chess Connect hardware

2. Displaying and broadcasting the game state on the Chess Connect software application

3. Giving users an option to choose between beginner mode, engine mode, and normal mode
    - Beginner mode will display legal moves for individual pieces when a chess piece is picked up, and will warn the players when an illegal move is made
    - Engine mode will display the best moves as determined by a chess engine for the position
    - Normal mode will disable the engine and beginner mode features. This is intended for regular play between experienced players

The following items are deemed to be **out of scope**:

1. FIDE (International Chess Federation) standards for tournament appropriate chess equipment
2. Tracking and support for alternate chess variants such as Chess960, Atomic Chess, King of the Hill. More information found here: List of Chess Variants.
3. Proper tracking of alternate starting positions like puzzles
4. Proper tracking of illegal moves and rule violations when warnings are ignored

7 Project Overview

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A Reflection

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References

List of Chess Variants. List of chess variants, Sep 2022. URL https://en.wikipedia.org/wiki/List_of_chess_variants.