

Singularity Software
Milestone 5

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By signing below, I approve the contents of the following document.

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Contents

1	Executive Summary	3
2	Introduction	3
3	Project Background	3
4	Usability Report	4
4.1	Process	4
4.2	Analysis	4
4.3	Findings	4
5	Interaction Architecture	4
6	Initial Interface Design	4
A	Features	5
	Glossary	6
	References	6

1 Executive Summary

This document is the fourth in a series of milestone documents that will accompany the planning of the Siftables Emulator. The Emulator project is an application that will allow developers of Sifteo applications to test the features of Sifteo Cubes — miniature computers that interact and communicate when used in tandem — in a virtual programming environment. There is currently an emulator from Sifteo, Inc. that comes as part of the Software Development Kit (SDK) for the Cubes. However, Singularity intends to come up with a more natural interface than the one currently provided in that application.

This milestone defines the standards for code in the Siftables Emulator project as well as the manner in which change will be controlled. It also elaborates the test cases that sufficiently cover the system. Future milestones will present design and usability reports as the software stabilizes.

2 Introduction

Developers of applications for the Sifteo Cubes currently must test programs they create for the platform within the emulator provided by Sifteo. While this emulator covers all the functionality of the Sifteo Cubes, it presents a user interface that Singularity Software believes could be more naturally implemented. As such, Singularity Software will provide, in the form of the Siftables Emulator, a new software-based emulator for the Sifteo Cubes that will allow developers to more naturally interact with the platform.

Milestone 4 relies on previous milestones as it defines a change control plan, coding standards, and test cases. It follows Milestones 2 and 3, which laid the foundation and elaborated the requirements of the Siftables Emulator specification based on the high-level design created in Milestone 1. Milestone 5 will elaborate on the upcoming usability study comparing the proposed Siftables Emulator design to the Sifteo emulator’s design before presenting original and feedback-based interface designs for the Siftables Emulator.

3 Project Background

The Siftables Emulator is being developed by Singularity Software as part of the Junior Project sequence of classes at Rose-Hulman Institute of Technology. When projects were solicited for the sequence, clients Tim Ekl and Eric Stokes (both Rose-Hulman alumni) submitted a request for an emulator for Sifteo Cubes, a new platform intended for “intelligent play.” After Singularity was chosen for the project, we met with Mr. Ekl to determine the three primary features of the Emulator: a Workspace where 1-6 Cubes could mimic the manipulations possible with physical Cubes, an Application Programming Interface (API) to program those virtual Cubes, and a set of example games designed to show off the first two features. Singularity’s Emulator is intended to build on the foundation of Sifteo, Inc.’s existing emulator by creating a more fluid and natural user interface.

4 Usability Report

4.1 Process

4.2 Analysis

4.3 Findings

5 Interaction Architecture

6 Initial Interface Design

A Features

Feature	Description	Status	Priority	Risk	Reason
Individual, virtual Sifteo Cube	A virtual representation of a single Sifteo cube	Approved	Critical	Low	Replicates physical Sifteo Cube
Buttons to manipulate each virtual Cube	Buttons on the virtual Cube will allow the user to flip and tilt it	Approved	Critical	Medium	Replaces physical actions where said actions would be impractical with a mouse
Workspace where multiple cubes can be emulated	Multiple cubes will be displayed on a workspace that replicates the free-form nature of physical Sifteo Cubes	Approved	Critical	Low	Replicates multiple Sifteo Cubes in a natural, free-form environment
Interactions between Cubes	The Cubes present on the workspace will communicate when they are neighbored	Approved	Critical	Low	Cubes can simulate the interactions possible with physical Cubes
Load programs into the Cubes	The user will load his own and example programs into the emulators Cubes	Approved	Critical	Medium	The ability to program programs for the emulator is dependent on a common interface
Snap Cubes to invisible grid	The Cubes will snap into an invisible grid when a button is clicked	Proposed	Useful	Medium	Increases productivity by allowing a quick reset if the Cubes are in disarray
Zoom Workspace	The Workspace will zoom to the level of an individual Cube or the whole space	Proposed	Useful	Low	Inspecting individual Cubes allows for precise checks of program Graphical User Interfaces (GUIs)

References

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