Hardware Design Final Project

**FPCAT – Battle Cat on FPGA**

Team 01

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# 1. Introduction

## 1.1 Motivation

## 1.2 Overview

- game name / what’s the game’s mechanism / what devices do we use / Top Module

# 2. Game Interface and Workflow

## 2.1 Start and Menu Scene

## 2.2 Play Scene

## 2.3 Win and Lose Scene

# 3. Game Material Design (Johnny)

## 3.1 Character Design

- each 6 pics, statistics

## 3.2 Stage Design

- IPs for enemy queue

# 4. Game Engine

- Display Time & Blanking Time

## 4.1 Storage Protocols

## 4.2 Character FSM

## 4.3 Game State FSM

# 5. Graphics Rendering

## 5.1 Rendering Module Architecture

- scene change, tint technique

## 5.2 Layer Implementation

### 5.2.1 Statis Objects

### 5.2.2 Characters

# 6. Conclusion

## 6.1 Gameplay Demonstration

## 6.2 Comparison with Original Game

## 6.3 What We Learned

# A. Appendix

## A.1 Contribution

## A.2 Python Tool - PNG to COE