

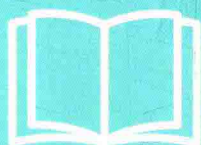
Micheal Lanham 著

增强现实游戏开发

(影印版)

Augmented Reality Game Development

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To the people I think about every day. My everything, Rhonda and children: Colton, Breann, Mikayla, and Charliegh.

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Table of Contents

Preface	1
Chapter 1: Getting Started	7
Real-world adventure games	8
Location-based	9
Augmented Reality	9
Adventure games	10
Introducing Foody GO	11
Source code	12
Getting into mobile development with Unity	12
Downloading and installing Unity	12
Setting up for Android development	14
Installing the Android SDK	15
Connecting to your Android device	18
Setting up for iOS development	19
Getting started with Unity	19
Creating the game project	19
Building and deploying the game	24
Building and deploying to Android	24
Building and deploying to iOS	26
Summary	27
Chapter 2: Mapping the Player's Location	29
GIS fundamentals	30
Mapping	30
GPS fundamentals	33
Google Maps	34
Adding a map	37
Creating the map tile	37
Laying the tiles	43
Understanding the code	47
Setting up services	51
Setting up CUDLR	51
Debugging with CUDLR	53
Setting up the GPS service	54
Summary	57
Chapter 3: Making the Avatar	59

Importing standard Unity assets	59
Adding a character	62
Switching the camera	63
Cross-platform input	66
Fixing the input	66
GPS location service	75
Map tile parameters	75
GPS simulation settings	76
Character GPS compass controller	80
Swapping out the character	85
Summary	89
Chapter 4: Spawning the Catch	91
<hr/>	
Creating a new monster service	92
Understanding distance in mapping	94
GPS accuracy	101
Checking for monsters	105
Projecting coordinates to 3D world space	109
Adding monsters to the map	110
Tracking the monsters in the UI	118
Summary	123
Chapter 5: Catching the Prey in AR	125
<hr/>	
Scene management	126
Introducing the Game Manager	129
Loading a scene	132
Updating touch input	133
Colliders and rigidbody physics	136
Building the AR Catch scene	142
Using the camera as our scene backdrop	145
Adding the catching ball	149
Throwing the ball	152
Checking for collisions	157
Particle effects for feedback	162
Catching the monster	163
Summary	168
Chapter 6: Storing the Catch	169
<hr/>	
Inventory system	169
Saving the game state	171
Setting up services	174

Reviewing code	177
Monster CRUD operations	183
Updating the Catch scene	185
Creating the Inventory scene	192
Adding the menu buttons	199
Bringing the game together	202
Mobile development woes	204
Summary	205
Chapter 7: Creating the AR World	207
Getting back to the map	207
The Singleton	210
Introducing the Google Places API	211
Using JSON	215
Setting up the Google Places API service	218
Creating the markers	219
Optimizing the search	224
Summary	229
Chapter 8: Interacting with an AR World	231
The Places scene	232
Google Street View as a backdrop	234
Slideshow with the Google Places API photos	237
Adding UI interaction for selling	243
The game mechanics of selling	250
Updating the database	252
Connecting the pieces	256
Summary	262
Chapter 9: Finishing the Game	263
Outstanding development tasks	263
Missing development skills	268
Cleaning up assets	271
Releasing the game	276
Problems with location-based games	277
Location-based multiplayer game	279
Firebase as a multiplayer platform	284
Other location-based game ideas	289
The future of the genre	290
Summary	291
Chapter 10: Troubleshooting	293

294	Console window	294
296	Compiler errors and warnings	296
297	Debugging	297
299	Remote debugging	299
303	Advanced debugging	303
303	Logging	303
307	CUDLR	307
309	Unity Analytics	309
314	Issues and solutions by chapter	314
316	Summary	316
317	Index	317

Preface

At the beginning of 2016, most of the world had very little knowledge of augmented reality and location-based games. That, of course, all changed with the release of Pokemon Go later that year. Literally overnight, the genre became entrenched as an upcoming trend in game development. Chances are you have played Pokemon Go and the reason you are reading this book is because of your interest in the genre of AR and location-based games.

In this book we will explore in detail the aspects of creating a location-based AR game just like Pokemon Go. Location-based AR games are expensive and require multiple services for everything from mapping to spawning monsters. However, the game we develop will be done with zero budget using freely available services. While this may not be something you could release commercially, due to some licensing restrictions, it will certainly introduce you to most of the concepts. Along the way, you will also learn how to use a great tool, Unity, and introduce many other concepts in game development.

What this book covers

Chapter 1, *Getting Started*, introduces the concepts that make up the genre of location-based AR games and our fictional game, Foody Go. This will be followed by a walk-through of downloading all the required software and setting up your mobile development environment with Unity.

Chapter 2, *Mapping the Player's Location*, starts by introducing the fundamental concepts of GIS, GPS, and mapping. Then shows how those concepts are applied to generating a real-time map and plotting the player's location in a game.

Chapter 3, *Making the Avatar*, builds on the previous chapter and transforms our simple location marker into a moving animated character. This allows the player to see their avatar move around the map as they move carrying their mobile device.

Chapter 4, *Spawning the Catch*, explains that the premise of Foody Go is about catching experimental monsters. In this chapters, we learn how to spawn the monsters around the player on the map.

Chapter 5, *Catching the Prey in AR*, ups the intensity by introducing integrated AR part of the game by accessing the device's camera, introduces physics for throwing balls, tracking player swiping, using creature reactions, and working with a new game scene.

Chapter 6, *Storing the Catch*, devoted to developing the player's inventory bag, which will hold all the Foody creatures they catch, and other useful items. Here, we walk the reader through adding persistent storage and adding a simple inventory scene.

Chapter 7, *Creating the AR World*, adds locations of interest around the player based on a real-time data service.

Chapter 8, *Interacting with an AR World*, allows the player to interact with the locations of interest. In our simple game, the player will be able to sell their caught monsters.

Chapter 9, *Finishing the Game*, provides the reader with the information on how to finish the game or better yet write their own location-based AR game. For the purposes of this book, we will only develop the demo Foody Go game.

Chapter 10, *Troubleshooting*, cover a number of troubleshooting tips and tricks to overcome those development obstacles. As with any software development exercise, problems always arise.

What you need for this book

In order to follow all the exercises in this book you will need, at a minimum, a computer capable of running Unity 5.4+ and an iOS or Android device capable of running Unity games and equipped with a GPS.

More details about Unity system requirements may be found at: <https://unity3d.com/unity/system-requirements>.

Who this book is for

This book is intended for anyone with an interest in developing their own Pokemon Go, location-based AR game. While this book assumes no prior game development skills or Unity experience, you will need a basic understanding of the C# language or equivalent (C++, Java, or JavaScript).

Conventions

In this book, you will find a number of text styles that distinguish between different kinds of information. Here are some examples of these styles and an explanation of their meaning.

Code words in text, database table names, folder names, filenames, file extensions, pathnames, dummy URLs, user input, and Twitter handles are shown as follows: "The next lines of code read the link and assign it to the to the BeautifulSoup function."

A block of code is set as follows:

```
#import packages into the project
from bs4 import BeautifulSoup
from urllib.request import urlopen
import pandas as pd
```

When we wish to draw your attention to a particular part of a code block, the relevant lines or items are set in bold:

```
<head>
<script src="d3.js" charset="utf-8"></script>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width">
<title>JS Bin</title>
</head>
```

Any command-line input or output is written as follows:

```
C:\Python34\Scripts> pip install --upgrade pip
C:\Python34\Scripts> pip install pandas
```

New terms and **important words** are shown in bold. Words that you see on the screen, for example, in menus or dialog boxes, appear in the text like this: "In order to download new modules, we will go to **Files** | **Settings** | **Project Name** | **Project Interpreter**."



Warnings or important notes appear in a box like this.



Tips and tricks appear like this.

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