

# Android Game Development with Unity Engine

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**Abstract**—Android platform is really promising for new developer to get many feedbacks for his application. Developing in Android has many difficulties with fragmentation in it's core. However, the market for Android is good especially in game criteria. Creating a new game is easier with game engine like Unity. Unity provide conditioned environment for developer to immediately jump into key points of the game. Developing game with Unity has many advantages because it's targeted for multiplatform. Unity is not suited to create basic application in Android, but it's a really powerful game engine to develop game in Android platform.

**Keywords**—Android; Unity; platform; game, game engine; market, difficulties, potential

## I. INTRODUCTION

Game has been an integrated part of many people life. People, particularly young adult, love to play game in their spare time. Market for game is ever increasing with time as well as new developers entering the field. Smartphone, the biggest platform to play game after PC[1], give a really promising space for newcomer game developer to learn and develop small scale games. Developing a new game for Android is no small task, at least to be a successful one. This market seems to have all of people's imagination. Even so, to develop a new game here is always welcome as the developer can get some critics and suggestion.

With increasingly developers to join the market, there is more demand to create more games with less effort. That is the way game engine / platform such as Unity to enter the field. With game platform, developing a game has been easier because developers can just focus in way more important things such as graphics and gameplay with leaving the complicated things to the game engine. The author choose this theme as learning because of ever growing Android market and never tried the use of Unity game engine for that specific platform before.

## II. ANDROID APPLICATION

Android application or usually called Android App is a software application running on Android platform. There are many types of Android App in Google Play Store, but game application has been the most successful of all. Developing an Android applications including game have it's own difficulty.

Nevertheless, people are still developing new applications because of it's potential.

### A. Difficulties in Developing Android Application

There are many known difficulties that developer will face when creating an application. The source of all this difficulties mainly is fragmentations in Android. There are software fragmentation which is new version of operating system and hardware fragmentation which is the abundant amount of screen size. There are also security issues, patent issues, carriage making too many change to OS and many more, but still the core problem is fragmentation. Every developers must pay attention to these problems so they can make a good application to everyone.

### B. Potential in Android Platform

Although there are many difficulties to develop in Android, the potential in this platform is also great. There are large amount of various users to give feedback and thought. There are now 1.4 billion active Android devices worldwide[2]. With that much devices, it's almost sure that no application has never been seen. As for game application in Android, it's very successful that 90% of Google Play's revenue came from games[3]. As for 2016, the growth of Android app revenue also increases by 40%.

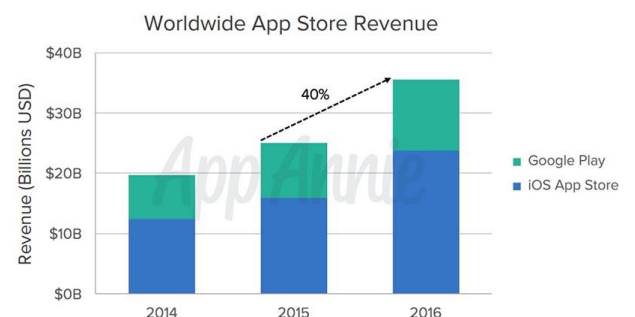


Figure 1 Worldwide App Store Revenue[3]

Android platform also serves as good learning practice for using multi touch screen and accelerator sensor. Android also release Android Studio, an IDE (Integrated Development Environment) to develop Android application easier.

### III. UNITY GAME ENGINE

Unity is a powerful game engine and development platform to build high-quality 3D and 2D games. Unity is used to develop video games for PC, consoles, mobile devices, and websites. Unity provides basic game assets, covering most complicated physics algorithm, online tutorials, documentation, etc., not only make developers focus on creating the core aspect of the game, but also to make them easy to learn.

Unity admit to be the world's favorite game engine for creating mobile game. There is several feature as to make the engine so popular [4]:

- One-click deployment to Android, iOS, Windows Phone, Tizen and FireOS.
- Optimization.
- Monetization and retention service for mobile games.
- Dedicated 3D and 2D tools and workflows.

### IV. UNITY FOR ANDROID GAMES

The use of game engine really make game development easier. That is also the case for developing mobile game with Unity. Unity makes development easier with it's deployment and overall tools. The author has tried to use Unity for developing Android game. The development process actually not really hard, basically it's developing the same game for PC or any other platform but with different inputs. For Android OS with almost all devices use touchscreen and accelerometer sensor, Unity also provide a really simple yet easy to use library to use it.

The author create a simple game that includes moving and directing a ball with simple accelerometer and touch. Getting a touch or touches is easy with Unity. It stores touches in array of touch, accessing every single touch with index and also counting the number of touches. Sensors such as accelerometer and gyroscope, the most common one, can be used directly to the script. Both multi touch and accelerometer use the same Input class for input manager.

There is also some weakness in Unity to create Android games. Unity isn't specially build for Android so it doesn't have many library to handle Android sensors such as temperature and magnetics. Unity handles basic sensors that is usually used in games and other than that there is no real support. Unity game in Android will be indirectly restricted to use rarely used sensors because it's not supported. Even so, Unity is good to create game that has simple interaction with touch and accelerator. Using Unity for creating game that has 3D graphic also very easy and will speed up development process.

### V. CONCLUSION

Android platform is one of the fastest growing market in the gaming industry. Creating an Android application will surely face difficulty as Android devices is really fragmented. However, Android market still has really big potential to grow with more people having smartphones. Mobile game is the biggest selling criteria in the market with 90% revenue.

Creating Android application with Unity game engine is not recommended. Unity game engine is a powerful tool to help develop game for any platform but not versatile enough to use it only for creating other application specially in mobile. Unity can only by used wholly to create games in many platform and make porting Unity game to different platform easier.

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### REFERENCES

- [1] Papadopoulos, John (2017), *GDC 2017 survey: PC remains the most popular platform, 53% of game creators developing for it*, Retrieved May 5, 2017, from <http://www.dsogaming.com/news/gdc-2017-survey-pc-remains-the-most-popular-platform-53-of-game-creators-developing-for-it/#more-94634>
- [2] Callaham, John (2015), *Google says there are now 1.4 billion active Android devices worldwide*, Retrieved May 5, 2017, from <http://www.androidcentral.com/google-says-there-are-now-14-billion-active-android-devices-worldwide>
- [3] Hindy, Joe (2017), *2016 recap: 90% of Google Play's revenue came from games (and more fun stats!)*, Retrieved May 4, 2017, from <http://www.androidauthority.com/2016-recap-90-percent-google-play-revenue-gaming-fun-stats-743626/>
- [4] Unity (2017), *Unity for Mobile*, Retrieved May 5, 2017, from <https://unity3d.com/unity/multiplatform>.

### STATEMENT

The writer hereby declare that the paper written is his own work. It is not a copy nor a translation of someone else's paper, and not a plagiarism.

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