Dino's World: A Mobile Application Using Augmented Reality

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ABSTRACT

Dino's World is a mobile application using augmented reality (AR) that can help the students learned best because of its accessibility through the use of mobile devices, that would trigger their interest to learn. The proponents would use 3D unity to develop this application. The mobile augmented reality application that the proponents will develop was limited only for android users and it is not compatible for iOS users. The application could be only use in smartphones and tablets. The proponents put limited 10 dinosaurs only to choose from. The proponents develop a mobile application using Augmented reality that would show 3D Image of the dinosaurs along with description. Based on the findings of this study, the following conclusions are drawn: This application could be of great help to the target users who were fond to know and discover things about dinosaurs, the dino's world through augmented reality can motivate the users to learn more about dinosaurs, the application that was developed by the authors was user-friendly and could be deployed to its users, and the used of augmented reality, could immersed the students in a virtually enhanced world which encourages them to use their imagination and discover the possibilities of the new world, all this while learning new things in a fun and interactive way. It was recommended to, make the class more interactive and fun, particularly teaching about dinosaur the teachers could apply augmented reality, through mobile phones, and furthermore, future developers may enhance and develop this application, through adding some features in learning about dinosaurs.

Keywords: *Augmented Reality, Dinosaurs ,Mobile Application, Smartphone.*

1.0 INTRODUCTION

Dino's World is a mobile application using augmented reality (AR) that was used to make the way of learning of student's about dinosaurs become more exciting and interesting to our target users students from grade 5 to grade 6 because base on what are the researchers have researched is that from this level is where history and science like dinosaurs and other historic creatures are being introduced to the students. Augmented Reality (AR), is a mobile device that, is useful when scanning and viewing an image in an Android device. An example of this can be video, another image, 3D Animations, Games, QR code, or whatever you want it to be. In this project the author, will try to provide information about dinosaurs, because a lot of people have a misconception about it. This application can be used on science related subjects like biology, zoology and even History. The mobile augmented reality application that the researchers will develop is limited only for android users and it is not compatible for iOS users. The application can be only use in smartphones and tablets. The researchers put limited 10 dinosaurs only to choose from. The researchers develop a mobile application using Augmented reality that will show 3D Image of the dinosaurs along with description.

1.1 Objectives of the Study

The study about "Dino's World: A Mobile Application Using Augmented:

1. To develop a mobile application through augmented reality.

2. To use 3D unity and C# as a mobile development tool

3. To use augmented reality technology that will help the users to understand dinosaurs in a more enjoyable way.

2.0 LITERATURE REVIEW

In the study conducted by, Rabia M. Yilmaz(2016), about the use of augmented reality. It was revealed that in the different articles that they have studied, and reviewed, it was found out that education. Science education is the most explored field of education that uses mobile application for improving the academic, motivation of the students to learn. On the other hand,

According to Harrison (2015), explained that virtual Zoo is an interactive entertainment center. In which it captures different kinds of animals, as if you are seeing them live on screen that becomes interesting to the viewers. Through this, a single tick is sufficient to catch your association with creatures on camera and the photo will be sent to a picked email address with a connection permitting to share it via web-based networking media.

Augmented Reality and Education: Current Projects and the Potential for Classroom Learning.[1] The handiness of cell phones has expanded extraordinarily as of late enabling clients to perform more assignments in a portable setting. This expansion in helpfulness has come to the detriment of the ease of use of these gadgets in certain unique situations.

Salman Khan(2017), In the 21st century, architecture drawing is mainly based on computers, by using powerful design software architects can get the most accurate and clear drawings. Smart phone can also works as minicomputer for architecture drawing by using related software to check the original drawing and do some changes.

Also, the architects can create the sketch work and get design ideas in record time without leaving the clients. Furthermore, smart phones is very convenient when sending message, and through communication.

Shelton (2016), agreed that through augmented reality, students can experience a learning that will allow them to realize the truth about dinosaurs, through having a vivid idea about its appearance. There is different kind, of dinosaurs that an augmented reality can allow the students to experience, in just a click in their mobile device. The dinosaur was a piece of an enlarged reality examination being directed in the Human Interface Research facility (HITLab) at the College of Washington. For the analysts it was-and still is-an intriguing knowledge to see this present reality when mixed with virtual items. As an instructor, the potential for utilizing this sort of innovation for realizing is the thing that strikes me the most. Expanded reality as a science and practice has been getting increasingly more consideration as of late as prove by articles in standard writing (see Feiner's Logical American article *1) and the developing number of designers going to meetings devoted to this sort of innovation.[2] The wedding of dinosaurs and sci-fi is the most regular and amazing blend, straight up there with root brew in addition to frozen yogurt, Lennon and McCartney, and Tina Fey and Amy Poehler.

Zulkarnaen (2015), mentioned Abstract—Augmented reality (AR), is like a science movie. But due to its newness in the market, it is still need a lot of improvement. By using AR, an application is designed inside your tablet which is similar to the live view of the physical world. The objective of this study is to review related literature that could highlight several significant knowledge gap for new exploration of AR study. The content analysis method was used in analysing the literature. An effective AR system must be built with real-time performance in mind and accurate timestamps must be available.. By using AR, an application is designed inside your tablet which is similar to the live view of the physical world. The objective of this study is to review related literature that could highlight several significant knowledge gap for new exploration of AR study. The content analysis method was used in analysing the literature. An effective AR system must be built with real-time performance in mind and accurate timestamps must be available. Accurate registration and positioning of virtual objects in the real environment requires accurate tracking of the user's head and sensing the positions of And it is a fact that because of its usefulness, people benefit from it. The researchers led a little audit of portable ease of use models and found that convenience is typically estimated as far as three characteristics; viability, productivity and fulfillment. Different characteristics, for example, psychological burden, will in general be ignored in the ease of use models that are most noticeable regardless of their conceivable effect on the achievement or disappointment of an application.

James Tan (2015) An examination with surviving warm blooded animals discredits the speculation on which the suspicion that dinosaurs were ectotherms was based. The examination investigating the lines of captured development (Slack) during the bones of around a hundred ruminants, delegate of the particular and environmental assorted variety of that gathering of warm blooded animals. The outcomes demonstrate that the nearness of these lines isn't a marker of an ectothermic physiology (does not produce interior warmth), as had recently been suspected, since all warm-blooded well

evolved creatures have them. It was revealed that in his study dinosaur in not a cold-blooded creature.

Nor Far Saidin (2016) Innovation in instruction can impact understudies to adapt effectively and can spur them, prompting a powerful procedure of learning. It was revealed that it added motivation, among the student to learn. Since its presentation, increased reality (AR) has been appeared to have great potential in making the learning procedure increasingly dynamic, compelling and important. This is on the grounds that its cutting edge innovation empowers clients to collaborate with virtual and continuous applications and carries the characteristic encounters to the client. Furthermore, the converging of AR with training has as of late pulled in research consideration in light of its capacity to enable understudies to be drenched in practical encounters. The utilization of AR, can be in various fields of getting the hang of including Prescription, Science, Arithmetic, Material science, Geology, Science, Cosmology and History.

Meanwhile, Papagiannis to Google Glass Project (2015), explained that AR glasses leverage the latest advances in mobile computing and projection display to bring MAR to a new level. It is a hand-free experience with lest device intrusion. AR glasses work in a way that users will be satisfied using their mobile devices. However, there is an issue whether they are real MAR or not as current applications on AR glasses supply functions which are irrelative to real world content and require no tracking and for AR glasses and will emerge alignment. The researchers regard it as AR because facial recognition and path finding are suitable on AR glasses in near future.[5] An interactive entertainment center. While a camera records the images of the surroundings and displays them on the screen, a computer generates animated animals in real time and adds them to the displayed image.

According to Alexander Kellner (2017), the popularity of Dinosaur research is creating at high rates the world over bringing about a few new revelations that are improving our comprehension of this earthly reptilian clade. With the exception of the last couple years, the investigations of Brazilian dinosaurs have not pursued this extensive pattern, regardless of the high capability of a few dinosaur areas. So far there are just eight portrayed taxa, four in the most recent year, speaking to theropod, sauropod, and one conceivable prosauropod taxa. Aside from impressions, there are no records of ornithischian dinosaurs in the nation what is in any event halfway logical by the absence of persistent vertebrate fossil gathering program in the nation. Additional subsidizing is important to improve the examination exercises in this field.

In relation to this, nowadays in learning any topic, particularly in Science Class, and History the teacher could apply the use of mobile application in teaching the class. This was agreed by Zsolt, (2017), mentioned that two of the most excellent qualities of people are their interest and creative ability. The best way to construct the future on interest and creative ability is through training that is established in similar standards. Educating and learning must be substantially more than a straightforward procedure of information exchange. Instruction needs to point understudies the correct way and tell them the best way to utilize all their insight combined with their creative energy to achieve really exceptional things. In the event that instructing strategies are manufactured for the most part on reading material and government sanctioned tests, it will be extremely hard to instruct

understudies to be interested and utilize their creative energy. Perusing several pages and rounding out state sanctioned tests won't run anybody's dream and innovativeness. Rather instructors should endeavor to join new and imaginative innovations in their guidance that request students to be imaginative and inventive while learning and reacting to assignments. This was also similar in teaching about dinosaurs, in order to maximize the full-potential of the students.

Wade, (2017), explained that for over a century, the situation of dinosaurs on the parts of their family tree has been founded on the state of their hips. This characterization has now been profoundly tested by specialists of another tree which, whenever acknowledged, swaps enormous subfamilies around, reveals new insight into dinosaurs' advancement and proposes they may have begun not in South America, as generally accepted, however maybe in some Northern Half of the globe region, for example, Scotland. Gorman, (2019), said that Tyrannosaurus rex was still the most dangerous kind of dinosaur, and considered to be the largest, the size of this dinosaur can be compared to a city bus. After T. rex was first described in 1905, the world's most charismatic mega fossil could have turned out to be a mere curiosity. These are some facts that would capture the interest of the learners in learning about dinosaurs in augmented reality.

3.0 METHODS

In developing the project, it followed a systematic process in order to get the desired results, first was a requirement analysis, which included, what are the things needed to come up with the project, second was to design the application, third was to undergo the development of the application, testing and maintenance in able to test whether the project application was functional.

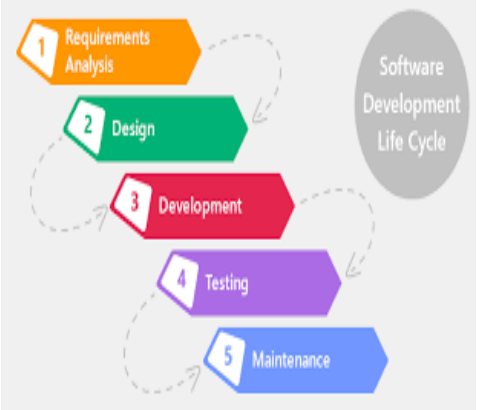

Figure 1. Software Development Life Cycle

Requirement's analysis

In this stage the researchers, spend time on extensive market research, it means that before they started working on the project, they applied careful planning. The researchers should first, gathered information by searching the different requirements and steps on making Dino's world through mobile augmented reality in any android mobile phone. Another strategy was through watching YouTube to easily understand the process, to ask opinions from the experts and to apply their background knowledge in creating an mobile augmented reality application, in the Dino's world.

Analysis

In this stage, the researchers analyzed if what software or tools would be used to design the Dino's world, through augmented reality, in mobile application, using android. The researchers also analyzed the needs of the project, and what applicable software and program would be used.

Design

In this stage the researchers would come up with an idea in how to make a Dino's world application that would be user-friendly, this stage, was also a crucial state when the author, tried to work about the

illustration and design of the project, as well as its functionality.. Moreover, in order to design the application and the flow chart of the project, the researchers used Adobe Photoshop, wherein the researchers were able to create a simple yet user-friendly user interface that will trigger the interest of the target users.

Development

In this phase the authors used UNITY 3D for designing and C# for scripting and also the researchers used Adobe photoshop for the interface. They also included the application of Vuforia AR Pluginit is an augmented reality programming improvement pack (SDK) for cell phones that empowers the formation of enlarged reality applications.[1] It utilizes PC vision innovation to recognize (Picture Targets) and straight forward 3D objects, for example, boxes, progressively. This image registration allows the programmer to visualize, such as 3D models and other media, in relation to real world images when they are viewed through the camera of a mobile device. The authors used Android operating system is a mobile operating system developed by Google, it was because its design allows users to manipulate mobile devices intuitively, with phone interactions that mirror common motions, such as pinching, swiping, and tapping. And the researchers used C# it is an object-oriented programming language from Microsoft that aims to combine the computing power of C++ with the programming ease of Visual Basic, to make the application work. Designers must remember the asset impediments on portable and compose code so that the application doesn't put an excessive amount of weight on the processor or memory.

Testing

In developing the mobile application about Dino's world using augmented reality, it's a smart thought to test as right on time and regularly. To easily detect the problems and to avoid wasting time and money, it was also advisable to refer to the original design and planning documents while building out the various testing of the application, and to undergo the debugging process.

Maintenance

This is the stage wherein the researchers applied the monitoring and testing of the application, and luckily due to their hard work and teamwork, the mobile application passed all the phases and ready for deployment, for its target users. The researchers underwent debugging of the application it is known as a process of identifying the existing and can be potential errors, called bugs, that can cause the application to crash, and to hang, and it was found out that during running the system, there were no bugs, and the application can be deployed to its users.

4.0 DISCUSSIONS

Flowchart

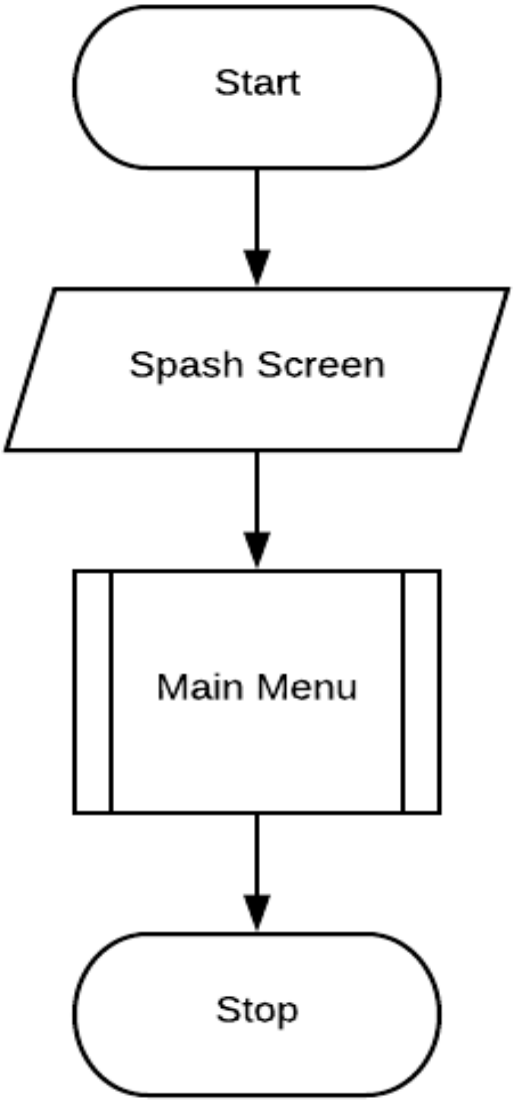

Figure 2. Home Page

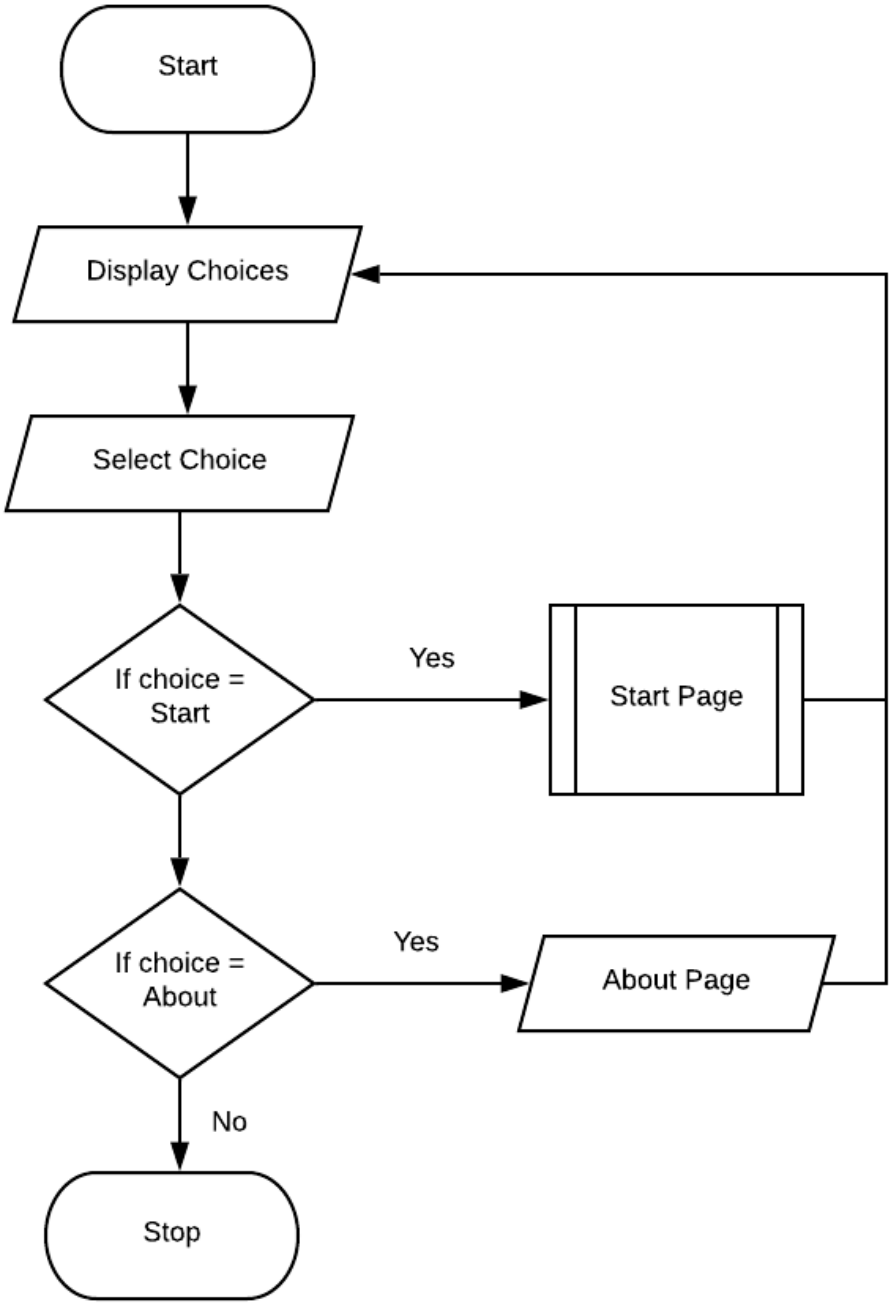

Figure 3. Main menu

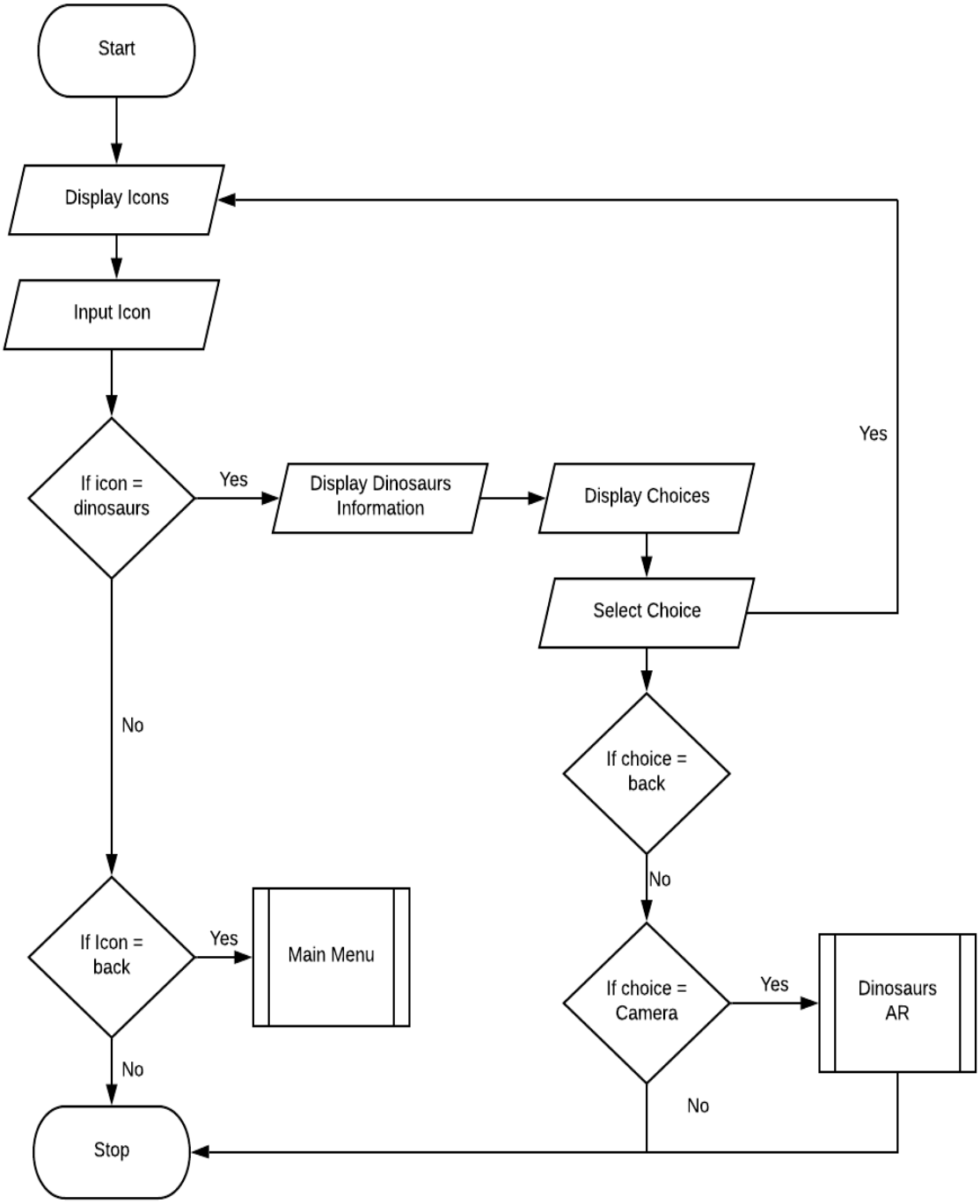

Figure 4. Main menu

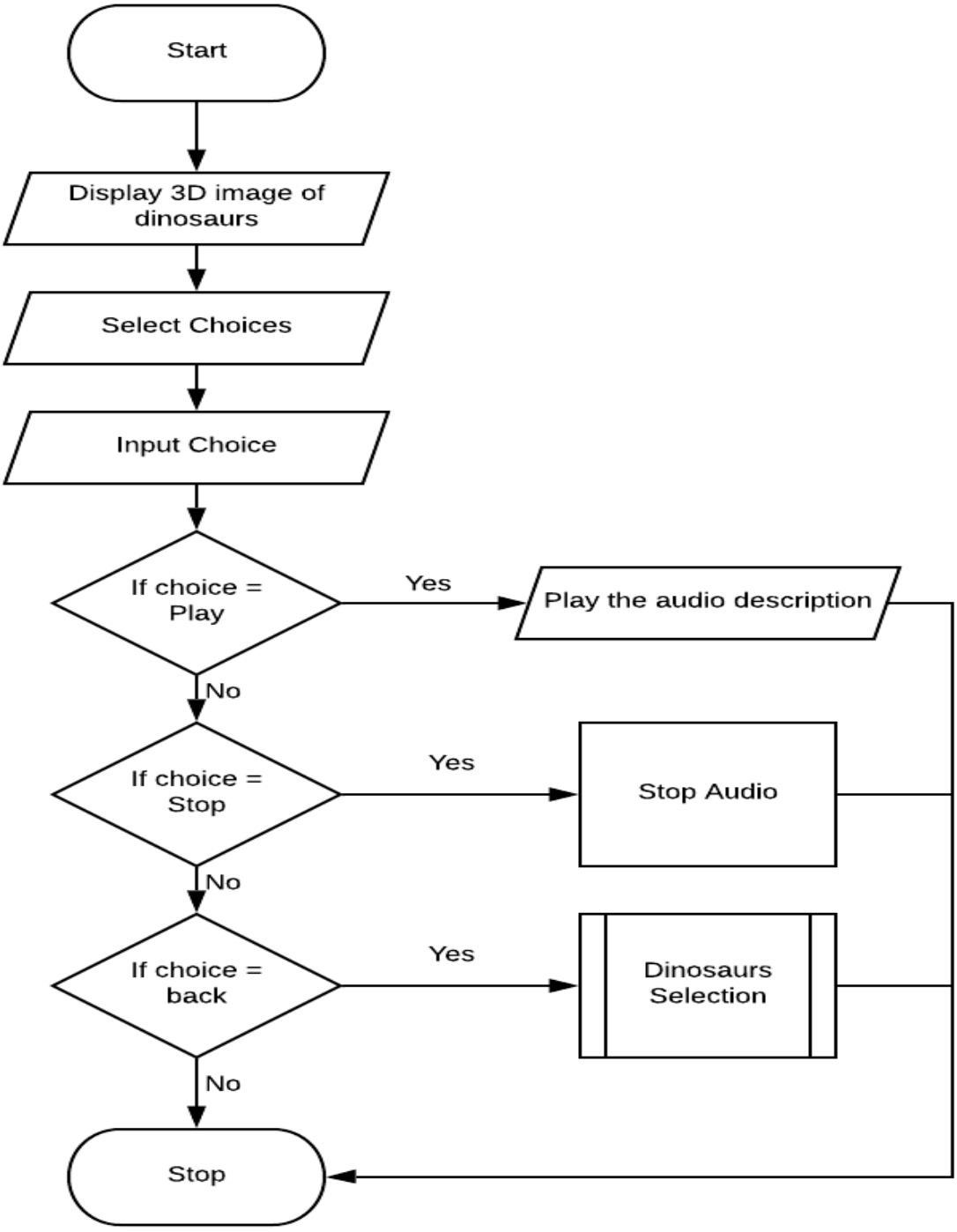

Figure 5. Main menu

Screen Layout

Figure 5. Loading Screen

This the loading screen/splashscreen of the application.

Figure 6. Homescreen/Mainscreen

In this interface, it will show the home page of the app, the first thing the user will see when finished loading.

Figure 7. Click here to Start

In this interface, it will show the different dinosaur of the app in the Figure 6..

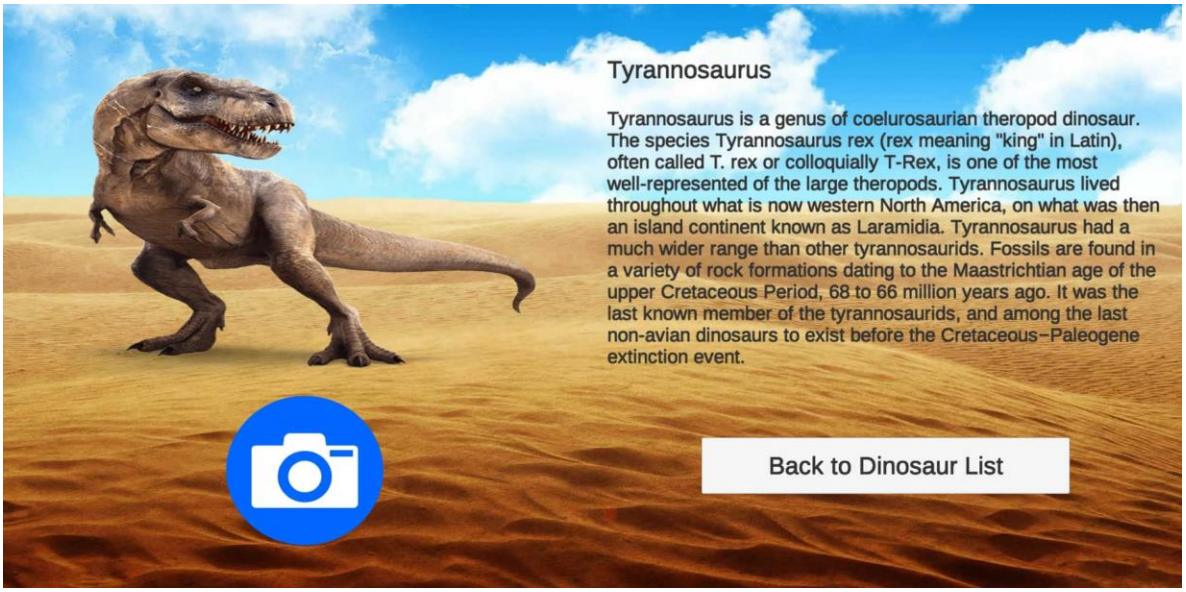

Figure 8. About the Dinosau

In this interface, it will show a picture of the chosen dinosaur with a short information about the dinosaur that will be scan in Figure 9.

Figure 9. Scanned Picture

In this interface, it will show the scanned picture that brings the dinosaur characters to life in incredible lifelike detail

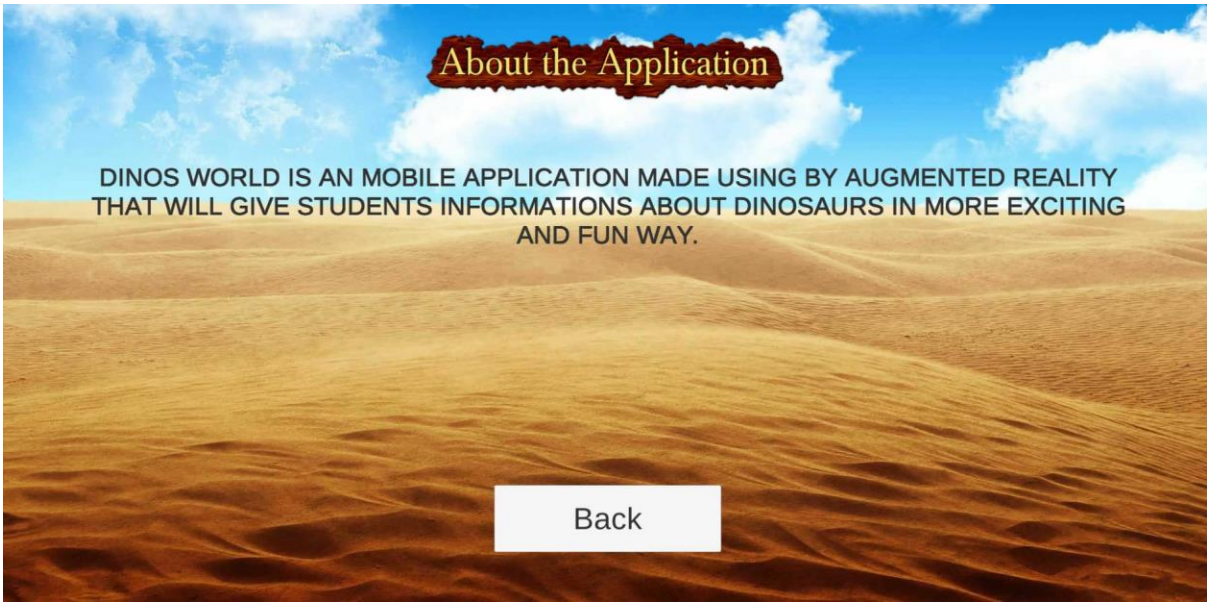

Figure 10.About the Application

In this interface, it will show the information about the applicatim

5.0.CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the findings of this study, the following conclusions are drawn:

1. This application could be of great help to the target users who were fond to know and discover things about dinosaurs.
2. The Dino's world through augmented reality can motivate the users to learn more about dinosaurs.
3. The application that was developed by the researchers was user-friendly and could be deployed to its users.
4. The used of augmented reality, could submerged the understudies in a for all intents and purposes upgraded world which urges them to utilize their creative energy and find the conceivable outcomes of the new world, this while adapting new things in a fun and intelligent way.

Recommendations

The following recommendations are hereby forwarded: To make the class more interactive and fun, particularly teaching about dinosaur the teachers could apply augmented reality, through mobile phones. Furthermore, it is recommended that they enhance and develop this application, through adding some features in learning about dinosaurs.

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