3D MOTION CAPTURE SIMULATION VIDEO OF MINOR CAR REAPIR FOR SOCIAL MEDIA

ANG CHING CHING

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

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SESI PENGAJIAN: 2014

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3D MOTION CAPTURE SIMULATION VIDEO OF MINOR CAR REPAIR FOR SOCIAL MEDIA

ANG CHING CHING

This report is submitted in partial fulfillment of the requirements for the Bachelor of Computer Science (Interactive Media)

FACULTY OF INFORMATION AND COMMUNICATION TEKNOLOGY
UNIVERITY TEKNIKAL MALAYSIA MELAKA
2014

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DEDICATION

To my beloved parents and family, thank you for your fully support during my studies.

To my supervisor, En.Mohd Adili Norasikin, lecturer, Pn.Sharul Badariah Mat Sah, and evaluator, Pn. Norazlin Mohammed, thank you for providing guidance and encouragement during the project.

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ABSTRACT

Nowadays, teenagers lack of knowledge on minor car repair as they consider repairing car is a torture job. They are more prefers to sending their car to service centre even for minor defects. However, there are lot in formations about minor car repair on printed materials such as book and magazine however less in social media. Most of the simulation videos in social media are live action. Live action may become good learning tools to user, but it is hard to add effect in the video. Besides, books and magazine could not simulate the real scenario. Hence, simulation of real scenario motion capture is the best method. Motion capture is a best way to capture the live action and it will save time to animate and furthermore the video can be added with all the effect which will make audience fell like be in a real situation. This video will be made as viral video since it is a popular trend today. This will be good tool to deliver knowledge about minor car repair to audience.

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ABSTRAK

Pada masa kini, remaja tidak mempunyai pengetahuan mengenai membaiki kereta kecil kerana mereka menimbang untuk membaiki kereta adalah pekerjaan penyeksaan. Mereka lebih suka menghantar kereta mereka ke pusat perkhidmatan walaupun sedikit kerosakan. Walau bagaimanapun, terdapat banyak dalam pembentukan mengenai pembaikan kereta kecil pada bahan-bahan bercetak seperti buku dan majalah tetapi kurang dalam media sosial. Kebanyakan video simulasi dalam media sosial adalah *live action*. *Live action* boleh menjadi alat pembelajaran yang baik untuk pengguna, tetapi ia adalah sukar untuk menambah kesan dalam video. Selain itu, buku-buku dan majalah tidak dapat mensimulasikan senario sebenar. Oleh itu, simulasi senario sebenar *motion capture* adalah kaedah yang terbaik. *Motion capture* adalah cara yang terbaik untuk menangkap tindakan langsung dan ia akan menjimatkan masa untuk bernyawa dan tambahan pula video boleh ditambah dengan semua kesan yang akan membuat penonton jatuh seperti berada dalam keadaan yang sebenar. Video ini akan dibuat sebagai video virus kerana ia adalah satu trend yang popular hari ini. Ini akan menjadi alat yang baik untuk menyampaikan pengetahuan mengenai pembaikan kereta kecil kepada penonton.

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LIST OF ABREVIATION

3D	-	Three Dimensional
Mocap	-	Motion Capture
2D	-	Two Dimensional
Fps	-	Frame per second
km/h	-	kilometre per hour
www	-	World Wide Web
RC1	-	Release Candidate 1
RC2	-	Release Candidate 2

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CHAPTER I

INTRODUCTION

1.1 Project Background

Teenagers nowadays slack of knowledge on minor car repair. Lacking of those knowledge will make them having trouble when their car are having problem and instead, they will send them to the service centre even for small problem but being charged high. Doing various automotive maintenance and repair by one self is said to be able to build up their confident [12].

There are many minor car repairs tutorial on printed material however people prefer to watch video rather than reading on the printed book. This is because watch video is more interesting than reading a book. Watch video can visualize something that is hard to imagine through reading. Besides, lot of viral video can be seen on social media such as Facebook, Twitter, YouTube and etc. and viral videos are easier to be spread since digital media become a popular trend today. Watch video also can save time. And it is easier to understand compare to books or magazines.

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However, the real scenario is very hard to be simulated in live action. Therefore motion capture will be the best method to capture the proper action to repair car. Motion capture captures the movement directly using complex models. The model movement will be smoothed compare with using frame by frame method.

This project will produce a few videos about common car problems and solutions, for example change tire, tank water overheat, fresh air button and jump start a car. The videos then will be uploaded on social media to be evaluated by user.

1.2 Problem Statement

There are some videos about minor car repair used stop motion, live action, 2D simulation and 3D simulation videos on social media. 3D simulation videos provide better visualization. In this project, 3D simulation videos will be used in conjunction with motion capture tool and visual effect to make the video become more informative and attractive.

Minor car repair is easy to learn and handle but many people less concern about it. However, repair a car without knowledge may cause big problems to the car. People seldom learn from television program and advertisement. This is because the duration of the advertisement on the television is too short. In addition, watch the video only once is very hard to memorizel. Nowadays, majority of people use social media. So, we can take it as the advantage for learning purposes. Upload the video on social media will allow the users download the video and watch it repeatedly when needed.

There are many videos available on social media, but some of the video duration is too long. Thus, users need to spend more time to watch it. Some video may provide wrong information.

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1.3 Objectives

The objectives of this project were:

- To implement motion capture technology for minor car repair simulation.
- To implement visual effect in 3D environment scene.
- To makes recommendations for minor car problem solution on social media by 3D simulation video.
- To evaluate the effectiveness about the simulation video.

1.4 Scope

The main focus of this project is to improve knowledge of minor car repairs and discover the solution ourselves. The focus group for these short videos are those who lack of knowledge about minor car repair and beginner driver. This project only covers about the solution of minor car problem which can be handled by anyone. This project not covers about major car repair such as speedometer, compressor belt, pump water and other. This project assumes that the users who lack of knowledge about minor car repair especially girls and beginner driver have motivation to learn it.

1.5 Project Significant

Minor car repairs are easy to learn. Therefore, this project will produce a few short videos to teach about the solution for minor car problem. In the video, 3D character will be used with motion capture to simulate the way how to repair. User can improve their car repair knowledge through the video. In social media, there is no 3D video simulation introduced about minor car repair. Production of these videos allows users to have more choices for learning minor car repair. The video will be published on

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social media and let user to evaluate. User can download the videos by video downloader to keep the videos for future purpose.

1.6 Expected Output

The expected output of this project is that motion capture simulation video with effect on minor car repair. User was able to improve their knowledge about minor car repair through these videos. The videos will be used motion capture simulation method and addition with visual and sound effect. Thus, the video is more realistic and users will fell the immersive environment.

The simulation video will be published through social media. This enables users to browse and watch repeatedly. Furthermore, user can even download and keep the videos as future reference.

1.7 Conclusion

As conclusion, this project will focus on short video about minor car repairs by using motion capture and publish it through social media.

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