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TRACKING HUMAN MOTION AND MAPPING ON ROBOT

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ABSTRACT

The existence of robot in human life had brought many advantages and benefit. The robot was created to do the job that human cannot do. For instance, exploring the thing that human cannot reach like the outer space. Also, do the dangerous job for human such as cleaning up the nuclear power plant or the rescue mission. This paper presents the method to composing three dimensional robot model walking movement using Python in Blender 3D modelling software based on the data from the human's gait. However, there are difficulties in mapping human based motion capture into robot directly since there are differences in the human and robot body structure and weight distribution. Therefore, this project used the value of angle of human's leg while walking from a video sample and mapping them onto the robot. Beside that, the animation of robot walking was composed using Python language in Blender 3D. This development will be applied on robot model that resembles Bioloid Kit Humanoid in Blender 3D software. From the survey, it can proved that the system is successful and able to satisfy the expectation of user.

CHAPTER 1

INTRODUCTION

This chapter provides the background and the rationale of the study for the proposed research. In this chapter, the background of the domain that related to the research project had been revealed.

There are three fields that related to this research which is; robotic, motion capture, and animation. Robotic is the field that studied about robot and machine. Motion capture is the technique to provide the real world movement and apply into three dimensions space. An animation is enable the still image to look alive.

At the same time, the problems that led to this research and objectives of this project have been discussed. The issues that led to mapping human motion to the robot are the different of the body structure and different properties between human and robot. The objectives of this project are to design, develop and test the tracking motion and mapping system.

In addition, this chapter also gives the details of the significance of mapping human motion on robot system. The significance of this project is it could help to expand the computer animation field by introducing the new way in construct the robot movement. With the expansion of the robotic field, it can benefit to many people because robotic is being used in many areas such as in manufacturing, education and much more.