

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama", Belagavi-560014, Karnataka



CGY MINI PROJECT REPORT
ON

"ROBOT WALKING SIMULATION"

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
CGV LAB

BACHELOR OF ENGINEERING
IN
COMPUTER SCIENCE & ENGINEERING

Submitted By

NETHRA PRASAD D R(1SV20CS032)

Under the guidance of

Mr.Renukaradhya P.C B.E., M.Tech.,

Assistant Professor, Dept. of CSE.

N. Renukaradhya P.C.

PRINCIPAL
S.I.T. TUMKUR



SHRIDEVI
EDUCATION

Department of Computer Science and Engineering

SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Affiliated To Visvesvaraya Technological University)

Sira Road, Tumakuru – 572106, Karnataka.

2022-23



Sri Shridevi Charitable Trust (R.) SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that, Computer Graphics and Visualization Mini-Project of entitled "Robot Walking Simulation" has been successfully carried out by Nethra prasad D R(1SV20CS032), in partial fulfillment for the CGV Lab of **Bachelor of Engineering in Computer Science & Engineering** of the **Visvesvaraya Technological University, Belagavi** during the academic year **2022-23**. It is certified that all the corrections/suggestions indicated for internal assessments have been incorporated in the report. The Mini- Project report has been approved as it certifies the academic requirements in respect of Mini-Project work prescribed for the Bachelor of Engineering Degree.

Signature of Guide

Mr. Renukaradhya P .C B.E., M.Tech.,
Assistant Professor,
Dept. of CSE,
SIET, Tumakuru.

PRINCIPAL
SIET, TUMKUR.

Signature of H.O.D

Dr. Basavesha D M.Tech, Phd
Associate Professor & HOD
Dept. of CSE,
SIET, Tumakuru.

Name of the Examiners

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Signature with date



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DECLARATION

I, Nethra prasad D R(1SV20CS032), student of VI semester B.E in Computer Science & Engineering, at Shridevi Institute of Engineering & Technology, Tumakuru, hereby declare that, the Mini-Project work entitled “Robot Walking Simulation”, embodies the report of our Mini-Project work carried out under the guidance of Mr. Renukaradhya P.C, Assistant Professor, Department of CSE, SIET, Tumakuru as partial fulfillment of requirements for the CGV Lab in Bachelor of Engineering in Computer Science & Engineering of Visvesvaraya Technological University, Belagavi, during the academic year 2022-23. The Mini-Project has been approved as it satisfies the academic requirements in respect to the Mini-Project work.

Place: Tumakuru

Date: 24/07/23

Nethra prasad D R
Student Name & Signature

NETHRA PRASAD D R

(1SV20CS032)

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Nenukaradhya P.C
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ABSTRACT:

The Robot Walking Simulation in CGV (Computer Graphics and Visualization) Mini Project focuses on developing a realistic and interactive simulation of a walking robot. The project aims to explore the principles of computer graphics and animation to create a visually appealing and physically accurate representation of a bipedal robot's walking motion.

The simulation utilizes advanced algorithms and techniques to accurately model the dynamics of a walking robot. It incorporates concepts from physics-based animation, such as forward and inverse kinematics, to calculate the joint angles and positions necessary for generating realistic walking motions. Additionally, techniques like trajectory generation, motion blending, and motion capture may be employed to enhance the realism and smoothness of the robot's movement.

The Robot Walking Simulation employs computer graphics technologies to render the virtual environment and the robot itself. Techniques such as shading, lighting, and texturing are used to create visually compelling and immersive scenes. The simulation may also incorporate realistic physics-based effects, such as gravity, collision detection, and object interactions, to add further realism to the environment.

The development of the Robot Walking Simulation involves the use of programming languages, graphics libraries, and animation frameworks. The project may leverage popular tools such as Unity, OpenGL, or DirectX to create an interactive and responsive simulation environment. Furthermore, user interface components and controls may be implemented to allow users to interact with the simulation, modify parameters, and observe the robot's walking motion from various angles.

Throughout the project, an iterative development process is followed, involving prototyping, testing, and refinement of the simulation. User feedback and evaluation are incorporated to ensure that the simulation meets the desired goals of realism, interactivity, and visual appeal.

Technology used

Graphics Software: various software packages are available for creating computergraphics, including 3D modeling and animation software,

Computer Hardware: A powerful computer with a good graphics card and sufficient storage capacity is required to run

graphics software, C++ and python languages are used in graphics.

Nandhu Kumar

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