

A Report on

**DESIGN AND FABRICATION OF SOCIAL INTERACTIVE
ROBOT USING FUSION 360 AND GAZEBO SIMULATION**

A Project report submitted for the partial fulfillment of the requirements for award
of Degree of

BACHELOR OF TECHNOLOGY

IN

MECHANICAL ENGINEERING

Submitted by

NAVEEN PRASAD BALLA	20811A0328
PAGOTI JAGADEESH	20811A0330
MAJJI GOPI KRISHNA	20811A0321
DUNGALA SRINIVAS	20811A0311
NAKKA VENU	20811A0326

Under the guidance of

Dr. CH. SURESH

Associate Professor



DEPARTMENT OF MECHANICAL ENGINEERING

AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Permanently affiliated to JNTU-Gurajada Vizianagaram, Accredited by NAAC A+,
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TAMARAM, MAKAVARPALEM, NARSIPATNAM, ANAKAPALLI DIST. - 531113

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DEPARTMENT OF MECHANICAL ENGINEERING

AVANTHI INSTITUTE OF ENGINEERING & TECHNOLOGY



CERTIFICATE

This is to certify that the project entitled “**DESIGN AND FABRICATION OF SOCIAL INTERACTIVE ROBOT USING FUSION 360 AND GAZEBO SIMULATION**” is the record of the work carried out by **NAVEEN PRASAD BALLA (20811A0328)**, **PAGOTI JAGADEESH (20811A0330)**, **MAJJI GOPI KRISHNA (20811A0321)**, **DUNGALA SRINIVAS (20811A0311)**, **NAKKA VENU (20811A0326)** students of final year B. Tech in the department of Mechanical engineering. This work is done for the partial fulfillment for the award of BACHELOR OF TECHNOLOGY during the year 2023-2024.

Project Guide

Dr. Ch. SURESH

Associate Professor

Head of the Department

Dr. V. HARI KIRAN

Associate Professor

Head of the Department
Department of Mechanical Engg.
Avanthi Institute of Engg. & Tech.,
Makavarapalem, Anakapalli Dt. -531113

External Examiner

P. V. Saji
27/4/24

ABSTRACT

It is a social interactive robot guide that has been used in several places and exhibitions. This paper presents its design and reports on results that have been obtained after its deployment in a permanent exhibition. The project is conducted to incrementally enhance the robot functional and decisional capabilities based on the observation of the interaction between the public and the robot. Besides robustness and efficiency in robot navigation abilities in a dynamic environment, our focus was to develop and test a methodology to integrate human-robot interaction abilities in a systematic way. We first present the robot and some of its key design issues. Then, we discuss a few lessons that we have drawn from its use in interaction with the public and how that will serve to refine our design choices and to enhance robot efficiency and acceptability. Nowadays many industries are using robots due to their high level of performance, reliability, ability to navigate in a risky environment, huge work hours with accuracy which is a great help for human beings. Obstacle avoidance robots are capable of detecting obstacles and avoiding collision during navigation. For any mobile device such as a robot, the ability to navigate in its environment is important because proper navigation enables the robot to achieve a desired task that it is designed for. Robot navigation might be necessary for either avoiding a path or following a path. The design of obstacle avoidance robot requires the integration of many sensors according to their task. Obstacle detection is a primary requirement of this autonomous robot. The robot gets the information from surrounding area through mounted sensors on the robot. Some sensing devices used for obstacle detection like bump sensor, infrared sensor, ultrasonic sensor etc. Ultrasonic sensor-based obstacle detection method has been discussed and analyzed in this paper.