

## **ENTERTAINMENT BASED TOY [ELEPHANT]**

**A report submitted in partial fulfilment of the Academic requirements for the  
award of the degree of**

**Bachelor of Technology**

Submitted by

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**UNDER THE COURSE**

**ENGINEERING EXPLORATION & PRACTICE**



**CENTRE FOR ENGINEERING EDUCATION RESEARCH**

**CMR COLLEGE OF ENGINEERING & TECHNOLOGY**

**(Autonomous)**

**(NAAC Accredited with 'A+' Grade & NBA Accredited)**

**(Approved by AICTE, Permanently Affiliated to JNTU Hyderabad)**

**KANDLAKOYA, MEDCHAL ROAD, HYDERABAD-501401**

**2021-2022.**

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**CERTIFICATE**

This is to certify that the report entitled “ENTERTAINMENT BASED TOY [ELEPHANT]” is a bonafide work done by K.Venudhar(21H51A1203), Kashish Singhal(21H51A1247), B.Hrushikesh Reddy(21H51A1201), J.Sri Varshith(21H51A1202), K.Babitha(21H51A1204) of I year B.Tech, in partial fulfilment of the requirements for the award of the degree of Bachelor of Technology, submitted to Centre for Engineering Education Research, CMR College of Engineering & Technology, Hyderabad during the Academic year 2021-2022.

**(Names of the project coordinators)**

**Mr. B. Sureshram**

**1. B. Venkateshwar Rao(Assistant Professor)**

**HOD-CEER**

**2. M. Raman Kumar(Assistant Professor)**

## DECLARATION

We, the students of I year B.Tech of Centre of Engineering Education Research, **CMR COLLEGE OF ENGINEERING & TECHNOLOGY**, Kandlakoya, Hyderabad, hereby declare, that under the supervision of our course coordinators, we have independently carried out the project titled “**ENTERTAINMENT BASED TOY[ELEPHANT]**” and submitted the report in partial fulfilment of the requirement for the award of Bachelor of Technology in by Jawaharlal Nehru Technological University, Hyderabad (JNTUH) during the academic year 2021-22.

### Name, Roll numbers of the students

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Finally, we thank all our faculty members and Lab Assistants for their valid support.

We own all our success to our beloved parents, whose vision, love and inspiration has made us reach out for these glories

## **ABSTRACT**

The remote control basically consists of two types, one is the wired and another one is the wireless. The wired component consists of remote control which can easily control the movements and the wireless component consists of receiving and detecting sensors and performing actions accordingly. My project is specially for the small children, so that they can play. In this smart toy it will walk and rotate its head. The goal of this project is to design a toy elephant for easy entertainment.

## TABLE OF CONTENTS

CHAPTERS		DESCRIPTION	PAGE NO
		Abstract	<b>5</b>
1		Introduction	<b>7</b>
2		Literature review	<b>8</b>
3		Problem Definition	<b>11</b>
	3.1	Community interaction with the concerned project team	
	3.2	Problem statement	<b>12</b>
	3.3	Objective	<b>12</b>
	3.4	Requirement analysis	<b>13</b>
	3.5	Methodology	<b>17</b>
4	4.1	Conceptual Design	<b>17</b>
	4.2	Block Diagram	<b>18</b>
	4.3	Design Description	<b>18</b>
5		Implementation	
	5.1	Results and Discussions	<b>19</b>
	5.2	Conclusions	<b>19</b>
6		Appendix	
	6.1	References	<b>20</b>

## **1. INTRODUCTION:**

The Entertainment based toy is elephant specially designed for kids. As we all know that kids love to play with toys with entertains them. Here we are making elephant toy which performs walking as slow as possible. we are using ultrasonic sensor to detect any obstacle. Our toy can work on Bluetooth or voice control (or) manually. We will do this project with the help of arduino UNO. The wired component consists of remote control which can easily control the movements and the wireless component consists of receiving and detecting sensors and performing actions accordingly. My project is specially for the small children's, so that they can play . This smart toy will walk as slow as possible. The goal of this project is to design a toy elephant for easy entertainment.

## **2. LITERATURE REVIEW:**

### **Existing solutions:**

#### **1) RC PROGRAMMABLE ROBOTIC AI ELEPHANT:**

[ Comprehensive Functions]: Voice-activated instructions, walking, crouch down singing, sit down, handstand, say hello, push-ups, nose up and down. You can also control the volume.

[ Programming Function]: You can program the actions on your elephant and it will repeat the actions you programmed.

[ Simple Operation]: All functions are clearly displayed on the remote control, and with voice commands, children can easily play.

[ Fun Interaction]: More interesting is you can throw a ferrule to an elephant and it can catch it with its nose.

[ Best Gift for Kids]: 3.7V 600mAh rechargeable battery can provide more playing time.





## 2) PATPAT® Electric Elephant Musical Toy:

[Moving with The Floating Ball]--Equipped with universal wheel on the bottom, the elephant-design toy can move freely, automatically turn around when facing a wall. Most interesting part is that the 'acrobatics' performance, floating balls. Through the nose and air pressure theory, turn on the switch, and the elephant will start blow the color ball into air.

[Cute Elephant of Moving Glowing Ear]--Not just the fun performance brought by the toy, the ear part is also can be like a real elephant is fanning their ears. With the music , the glowing devices in the ear start to work, then you get a pair of moving glowing ears.



### 3) TRANSFORMING ACTION FIGURE-ELEPHANT:

- TRANSFORMS FROM ELEPHANT TO ROBOT - Manipulate the parts of the elephant and it changes into a robot figure in seconds!
- PERFECT FOR PLAYTIME – This transforming toy is perfect for getting your little one excited for playtime and perfectly stimulates their imagination so that they can make creative play sessions when playing with our transforming action figure.
- TRANSFORMS WITH EASE – Our robot toy is perfectly simple for children to transform thanks to its easily movable parts as and quality build construction. Then, it can also be easily transformed back into an animal toy when they're done.
- GREAT FOR CHILDREN YOUNG AND OLD – This elephant robot toy has been made to be perfect for children 3 and over to play with. Even older kids will be able to enjoy the unique design and thought provoking transformation mechanisms



### **Disadvantages of existing solutions:**

- The main disadvantage of above mentioned existing solution is cost is very high.
- It is also much difficult to operate the elephant toy because it has many advanced functions .
- It is difficult to remember which button in remote is used to perform particular task.

## **3 PROBLEM DEFINITION**

### **3.2 Problem statement**

A toy manufacturing industry in the town is interested in designing of toys for entertaining the kids. There is need of designing an elephant model which should be semi-automatic, should move as slow as possible, and serve the purpose of entertainment and attract kids with its appearance. The cost of the toy should be less than 2500.and it should move as slow as possible.

### 3.3 Objective

Main objectives of this project are :

- The toy should move as slow as possible.
- As this toy is for children(3-6 years) it should be easy to operate.
- Appearance of the toy should be good, then only children likes it to play
- Cost of the toy should not exceed 2500Rs.
- Body of the toy should be much rigid.

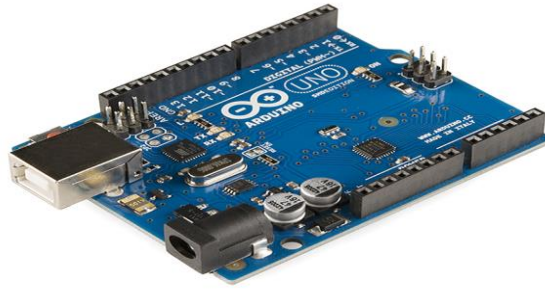
### 3.4 REQUIEEMENT ANALYSIS:

The required components for this project are:

- 1] Arduino UNO   2] Motor Driver   3] Wheels   4] Ultrasonic Sensor  
5] Battery   6] Jumper wires   7 ]Servo Motor   8]Bluetooth Module

#### 1.Arduino UNO:

- Arduino UNO is based on an ATmega328P **microcontroller**
- The Arduino UNO includes 6 Analog Pins,14 Digital pins and a USB connector.
- It is programmed based on IDE(Integrated Development Environment).
- It can run both online and offline platforms.



3. **Motor Driver:** The L293D is a 16-Pin **Motor Driver IC**. It is mainly used to drive motors. A single **L293D IC** is capable of running two DC motors at the same time; also the direction of these two motors can be controlled independently. In our project we connect this Motor Driver to arduino UNO.



4. **Wheels:** In our project wheels are used for the movement of the elephant toy.



## 5. Ultrasonic Sensor:

- An ultrasonic sensor is an electronic device that measures the distance of a target object by emitting ultrasonic sound waves, and converts the reflected sound into an electrical signal.



**5.Battery:** In our battery we had used 5v 1000mah Li ion battery containing 4 AA cells. We can recharge the battery using a power adapter.



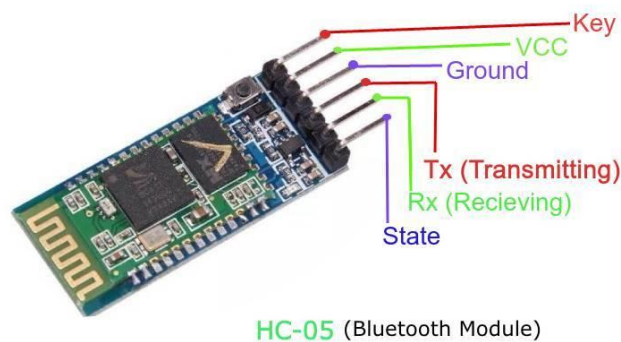
6. **Gear motor:** these motor are used to transmit power from battery to the wheels of the toy.



**7.Jumper Wires:** It is an electric wire , with a connector or pin at each end , which is normally used to interconnect the components of a project or prototype which are internally composed of different components .There are different types of jumper wires male-male,male-female,female-female..



8. **Bluetooth Module:** In our project we use this Bluetooth module (HC-05) for easy interface with mobile or laptop. by using this Bluetooth we can control toy wirelessly.





### **3.5 METHODOLOGY**

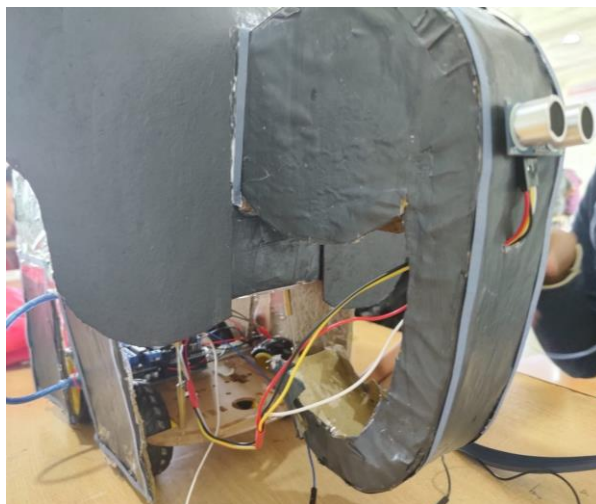
Firstly a code with required operations including ultrasonic sensor and Bluetooth module with switch operation is uploaded into micro-controller(Arduino).

L293D Motor driver shield is attached to Arduino board and wheels using shafts are attached to the motor driver using wires. Bluetooth module sent the signal to the Arduino board and wheels starts rotating . Hence the elephant toy starts moving.

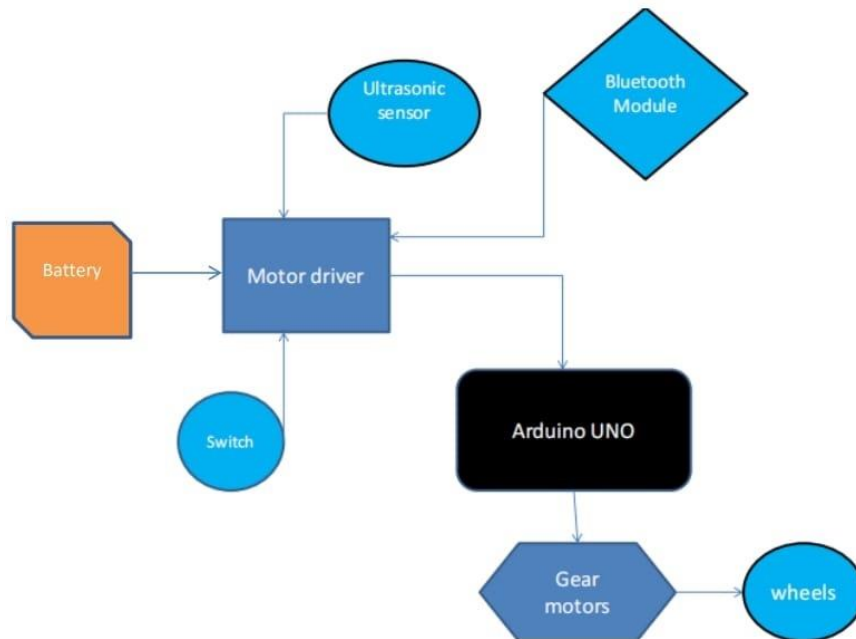
We can operate it manually by using ultra sonic sensor. Ultra sonic sensor is kept at the front of the toy. If ultrasonic sensor detects any object (obstacle) then it will change toy's direction.

## **4.**

### **4.1 CONCEPTUAL DESIGN**



## 4.2 Block Diagram



## 4.3 DESIGN DESCRIPTION

In our project, we are using ultra-sonic sensor and bluetooth module for movement of the toy. Using jumper wires we connect these sensors to motor drivers, and that motor driver is connected to arduino board, we are using a 1000mah rechargeable battery and this battery is connected to motor driver.

### ADVANTAGES OF ENTERTAINMENT BASED ELEPHANT TOY [ELEPHANT]

- Easy to use
- Cost Efficient
- Eco-friendly
- Easy to carry {weight<650gms}

## **5. IMPLEMENTATION**

### **5.1 RESULTS AND DISCUSSIONS**

By finishing this project, we are hoping that our prototype [Elephant Toy] is useful for the children who are aged between (3-8 years).they can use it both manually as well as semi-automatically(using Bluetooth) & voice control. The Entertainment based toy is elephant specially designed for kids.

### **5.2 CONCLUSIONS**

Significance refers to the importance of the system , this project is important and also useful to the small kids and parents for entertaining the child as a toy manufacturing industry in the town is interested in designing of toys for entertaining the kids. So, finally we hope this toy is useful for children for their entertainment purpose.

## **6. APPENDIX**

### **6.1 References:**

1. <https://youtu.be/KCmPnGVgGvU>
2. <https://srituhobby.com/>
3. <https://create.arduino.cc/projecthub/mithun-das/mahout-save-the-elephants-819b54>
4. [https://create.arduino.cc/projecthub/diyprojectslab/obstacle-avoiding-robot-2a69d5?ref=part&ref\\_id=8233&offset=35](https://create.arduino.cc/projecthub/diyprojectslab/obstacle-avoiding-robot-2a69d5?ref=part&ref_id=8233&offset=35)

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