

THE PROJECT REPORT ON TOPIC “**Multipurpose  
Box**”

**SUBMITTED TO**

**MIT ACADEMY OF ENGINEERING, ALANDI (D.)  
PUNE.**

**SUBMITTED BY**

| PRN NO.      | NAME                  |
|--------------|-----------------------|
| 202201070124 | Vaibhav Pawankar (40) |
| 202201070125 | Mayuri Yadav (41)     |
| 202201070126 | Sanika Landge (42)    |
| 202201070127 | Ayush Fating (43)     |
| 202201070128 | Kaustubh Mahajan (44) |
| 202201070135 | Vaishnavi Patil (51)  |

**Course - Rapid Prototyping Module-**

**CivilCourse Code- ET 235**

**Course Faculty  
Dr.Vijay Muthekar**

**SCHOOL OF MECHANICAL & CIVIL  
ENGINEERINGMIT ACADEMY OF ENGINEERING,  
ALANDI (D.), PUNE  
A.Y. 2022-2023**

## CERTIFICATE

This is to certify that the Credit seminar report entitled “**Multipurpose Box**” submitted Vaibhav , Mayuri , Sanika , Ayush , Kaustubh, Vaishnavi of School of ENTC Engineering of MIT Academy of Engineering is record of his own work carried out under our supervision and guidance. The matter enclosed here is not been submitted elsewhere for award of any degree or diploma.

Internal Examiner

External Examiner

Date:14-12-2023

## ACKNOWLEDGEMENT

We would like to express our special thanks of gratitude to the Civil Prototype Faculty, who gave us the golden opportunity to do this conceptual project of Prototyping. We wish to express our profound thanks to our project guide, Dr.Vijay Muthekar for his meticulous planning, the valuable time that he spent with us, discussing our project ideas. We also want to thank our director Dr. Mahesh Goudar for providing us with the basic infrastructure and other facilities.

|                  |
|------------------|
| Vaibhav Pawankar |
| Mayuri Yadav     |
| Sanika Landge    |
| Ayush Fating     |
| Kaustubh Mahajan |
| Vaishnavi Patil  |

## **ABSTRACT**

This prototype introduces a versatile first aid box crafted from sustainable bamboo. The multipurpose aspect allows it to serve diverse needs, offering a blend of functionality and sustainability in a first aid solution. This multipurpose bamboo first aid box prototype not only addresses the essential functionality required for a first aid kit but also emphasizes sustainability and adaptability to various contexts.

# **INDEX**

## **1. INTRODUCTION**

### **1.1 AIM**

### **1.2 OBJECTIVE**

### **1.3 PROBLEM STATEMENT**

### **1.4 ADVANTAGES**

### **1.5 DISADVANTAGES**

### **1.6 APPLICATION**

## **2. PLANNING AND DESIGN**

## **3. METHODOLOGY**

## **4. PROTOTYPE**

## **5. TEST RESULTS**

## **6. CONCLUTION**

## **7. BILL OF MATERIALS**

## **8. REFERENCE**

## **INTRODUCTION**

**AIM:** To make a Multipurpose Box using Bamboo

**OBJECTIVES :** The multipurpose bamboo box aims to be both eco-friendly and practical. By using bamboo, the design prioritizes sustainability while ensuring versatility in addressing various medical needs.

**PROBLEM STATEMENT :** Our challenge is the absence of a versatile and eco-friendly box. The current options harm the environment, so we require a bamboo-based solution that is adaptable, user-friendly, and sustainable, addressing both our emergency needs and environmental concerns.

### **ADVANTAGES :**

The fibers in a bamboo pole run axially, creating amazing strength.

Weight: Bamboo is relatively light.

Bamboo doesn't snap at the first sign of stress.

Bamboo is ecofriendly.

### **DISADVANTAGES:**

Products made from bamboo can be prone to pest attack.

The product may not resist

Fire

### **APPLICATION:**

#### **Households:**

A bamboo box is an ideal addition to households, providing a sustainable and customizable solution for everyday emergencies

#### **Workplaces:**

Offices and workplaces can adopt bamboo first aid boxes as part of their eco-conscious initiatives, offering employees a sustainable and accessible emergency solution.

#### **Educational Institutions:**

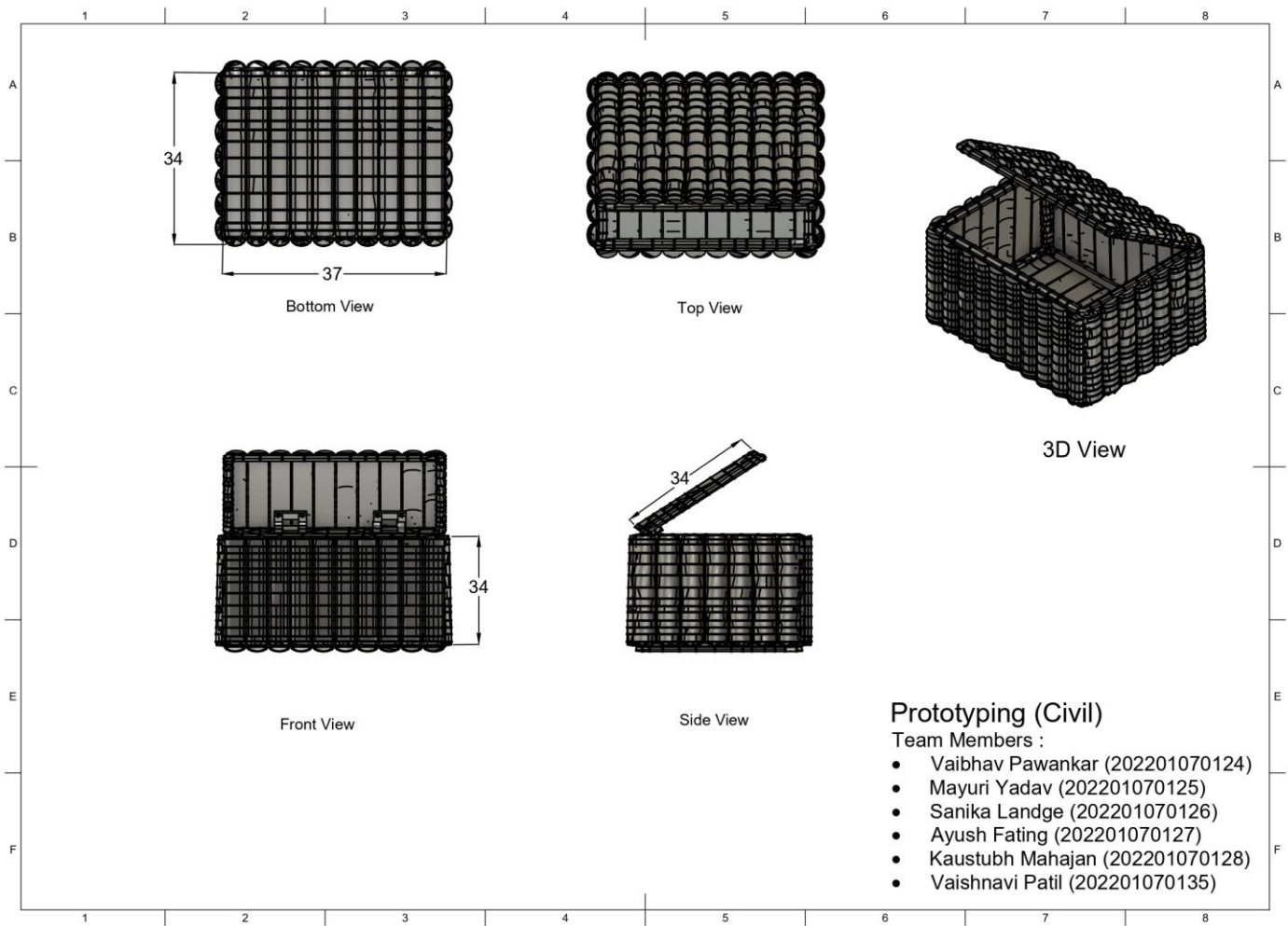
Schools and universities can integrate bamboo first aid boxes, fostering a sense of environmental responsibility and providing students with a sustainable emergency resource.

#### **Travel and Tourism:**

Sustainable tourism practices can include bamboo first aid boxes in travel essentials, catering to both emergency needs and eco-friendly travel initiatives.

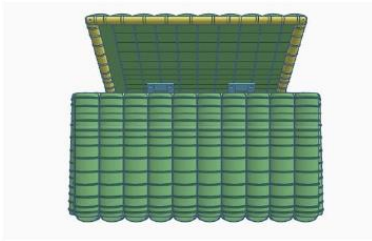
## PLANNING AND DESIGN

- METHODOLOGY :

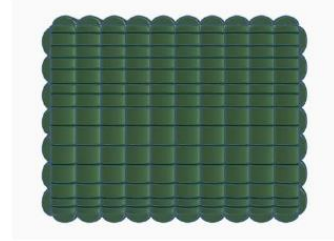


Fusion 360

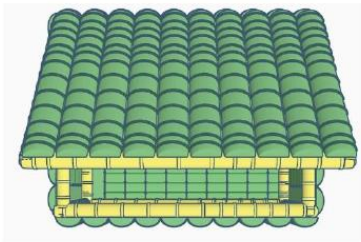
## TinkerCad Model



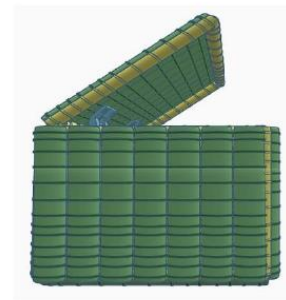
Front View



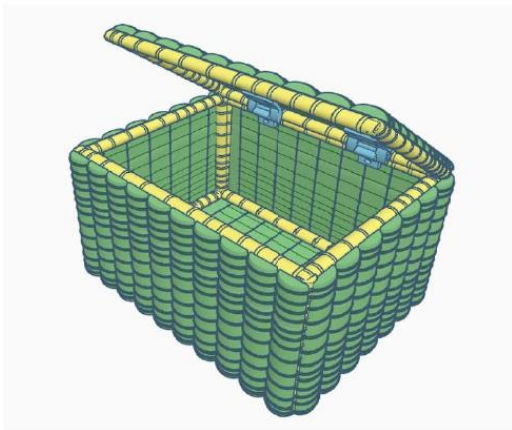
Bottom View



Top View



Side View



3D View



## PROTOTYPE

1. **Concept Validation:** Prototyping helps in validating the conceptual design of the couch by providing a tangible representation.
2. **Material Selection:** Prototyping helps in evaluating various materials that can be used in the construction of the First aid box.
3. **Visualization and Presentation:** A physical prototype provides a visual representation that can be used for presentations, client approvals.
4. **Cost and Time Optimization:** By identifying and resolving design issues early in the prototyping stage, potential construction errors and costs can be minimized.





## TEST RESULT

- **Durability Test:**

Subject the bamboo first aid box to impact and stress tests to assess its durability. Evaluate the box's ability to withstand external forces without compromising its structural integrity.

- **Customization Test:**

Test the ease of customization of the interior compartments for different emergency scenarios. Ensure that users can adjust the layout to accommodate various medical supplies effectively.

- **Environmental Impact Assessment:**

Conduct a life cycle analysis to assess the overall environmental impact of the bamboo first aid box. Evaluate the sustainability of materials and manufacturing processes.

## CONCLUSION

Hence we finally made our prototype, “**Multipurpose Box** ”

Thus, it can be concluded that bamboo is an effective material for the construction of flower pot holder. Bamboo is economical material as well as eco-friendly.

bamboo's rate of productivity and cycle of annual harvest outstrips any other naturally growing resource, if today you plant three or four structural bamboo plants, then in four or five years later you will have mature clumps, and in eight years you will have enough mature material to build a comfortable, low cost structure. It can be used as showpiece. It also help in the sustainable growth.

### **BILL OF MATERIALS**

| Sr No. | Particulars/ Items                 | Cost of Final Product |
|--------|------------------------------------|-----------------------|
| 1      | Cost of Material(30 x price 10/kg) | 30x10=300/-           |
| 2      | Cost of Machine used               | 200/-                 |
| 3      | Electricity charger                | 100/-                 |
| 4      | Scrapes if any                     | 100/-                 |
| 5      | Labour Charge                      | 600/-                 |
|        | <b>Total Cost (Final Cost)</b>     | <b>Rs. 1300</b>       |

## **REFERENCES**

Amada, S., & Untao, S. (2001). Fracture properties of bamboo. *Composites PartB: Engineering*, 32(5); 451-459.