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MULTIUTILITY AND MULTIPURPOSE TABLE

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ABSTRACT

A student typically spends 10 to 15 hours per day in his or her respective dorm room. We typically keep all of our important papers, food, stationery, books, electronics, and water bottles on the same table, which can lead to problems like paper documents becoming ruined, liquids spilling, and electronics being handled improperly.

This research paper aims to examine the feasibility of use of Study Tables provided currently by the Student Welfare department of the Institute to Hostel rooms and come up with a student friendly and efficient design for the table.

We looked into the need for a unique table that could assist us in keeping our valuables organized and as a result, came up with one such design for a table. During our survey of our classmates using Google Forms, we found out that the design of the Tables was not particularly student-centric from the point of view of utilities management and accessibility. Students faced difficulties like the height of the table being too much, straining their back while working for long periods of time affecting their posture and no separate compartments for keeping small and delicate items.

We conclude that the study tables in the dorm rooms need to be designed better.

1. INTRODUCTION

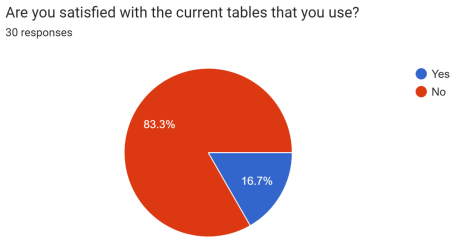
People nowadays have become so busy and careless that they don't usually keep their table organized. Now, when we actually need to find something out of that mess, we're never able to find it. Many of our important documents and valuables have been lost due to this and there must be something so that we're able to keep our stuff organized. Seeing the hostel rooms of our friends and classmates, the situation seems to be very problematic. Moreover, who doesn't sit for hours working on their computer ? This leads to a lot of back strain along with eyestrain.

There are many different solutions available already. Currently in order to keep pens and the other stationary things arranged and organized, we use a pen stand which can be kept on the table. But this pen at the end of the day will roll here and there in most of the student's rooms. Also, we have portable laptop stands but they all are rarely used in daily life due to busy schedules.

There is a need for a different solution so that all of our belongings (at least the important ones) stay organized and everything doesn't end up being messy. That is why we have decided to make a multi-utility table which will not only solve our problem but help to keep everything in one place. Having a

laptop stand will make life simpler and reduce our back strain[1]. Other utilities will also be of benefit to the user.

Here are the responses of a form we have floated among the student community



1. PROPOSED DESIGN

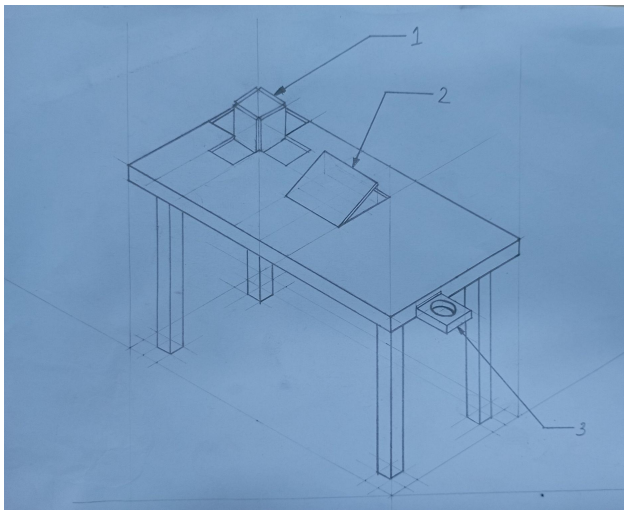


FIGURE 1

- As you can see in the figure 1 picture is a table with additional features. Some of the additional features are listed below.
    1. In-built pen stand
    2. Laptop stand
    3. Bottle holder

- Pen-stand is made up of wood. The pen-stand rises from the table when the user clicks a button. We can use it as temporary storage to store pens, pencils, erasers and many other items. It proves to be convenient as it can fold whenever not in use.

- In the center of the table is a laptop stand. It is made up of polymer or metal. It has multiple cavities for circulation of air which helps in cooling down the laptop. It has a hinge and lock mechanism which helps it achieve rigidity and also provides multiple levels of inclination for the laptop to sit on. We need a rigid material for the stand, since it has to withstand the weight of the laptop.
- Bottle holder is in a drawer on the side of the table. By pushing it slightly it releases. We can contain any drink in a glass, bottle or any other drink. It consists of two things.- first, the wooden part has a cavity, and a nylon net is attached to it so that it can be used to contain the items. It also helps reduce the clutter of the workspace available on the table.

2. PROPOSED MATERIALS AND MANUFACTURING PROCESSES

Proposed materials:

- Wood for making the basic structure of the table.
  For the base of the table we can use hardwood for example Oak, Mahogany or sheesham as sheesham wood is extremely durable and resists wood termites.
- Hinge :
  It is an essential component because without help of hinge it is difficult to make folding tables.(It is basically made up of steel, brass, bronze, pewter, and copper)
- Nails:
  To fix all the joints while making the table.
- Metal rod:
  30-50 microns chrome hydraulic cylinder piston rod, it will be used to lift up the table according to the consumer's use. It will help the table(desk) to hold its position by fixing it in holes made in the back of the desk.
- Polymer:
  Plates made up of plastic will be used to make a compartment for keeping pens, markers, etc.Basically a pen stand kind of thing which will be built in the desk itself.

Manufacturing process:

- Carpentry:
  It will be used for cutting the wood to make components for making table, desk
- Drilling:
  To provide holes wherever necessary.
- Rapid prototyping:

It will be used while making the laptop stand which will be built in the table itself.

3. TASKS AND TIMELINES

4. CONCLUSIONS

For the reasons mentioned above, we have decided to make a customized study table that adds functionality to existing designs that we find lacking. This shall greatly help many students who currently have to use different arrangements for their possessions and also arrange things in an ordered manner. This design allows us to make use of the manufacturing techniques that we have learned and apply them to real-life applications.

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CONTRIBUTIONS

All the members have contributed by providing ideas through brainstorming and problem analysis.

Aaryan Darad: Introduction writing and data collection
Alok Vidyarthi: Making chart for task analysis and writing part of manufacturing process
Animesh Tumne: Made the drawings of the assumed product design.
Kaushal Kothiya: Description of the proposed design
Pushkar Parakh: Writing part of the proposed materials
Nishant Tatar: Conclusion Writing and data collection
Sharika S: Introduction and acknowledgements
Shashank Ghosh: Writing part of the abstract