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# The Development of Gym Equipment using Bamboo Poles

B Vinay[1], Mohammad Abu Bakr[2], Mohammad Al Aman Hussain[3], P. Mahesh Kumar[4], N Tulasi Ram[5],
[1, 2, 3, 4]*B. Tech Students from Dept. of Mechanical Engineering, St. Martin's Engineering College, Hyderabad, India.*
[5]*Assistant Professor from Dept. of Mechanical Engineering, St. Martin's Engineering College, Hyderabad, India.*

***Abstract:** A Bamboo Gym is an all in one system consisting of various gym equipment possessing different workout utility. The bamboo used here is green bamboo which provides lots of flex and stability which makes it easier to work on with precision. A bamboo gym is made-up to reduce human struggle and time, and to reduce manufacturing cost. This kind of gym equipment have lots of advantages because bamboo is a renewable asset, marked by high strength and lower weight. This equipment is easily portable and is light in weight. This is nontoxic, environmentally friendly, easily affordable due to its low cost and is highly productive.*

***Keywords:** Bamboo poles, Gym Equipment.*

## I. INTRODUCTION

Today humans have become much busy with other works and some are lazy enough that they never think of maintaining good health. *"People need time and comfort"*; keeping this under consideration we have made a so-called bamboo gym which is pretty much a home gym with all the equipment one could expect. This setup requires less area for accommodation and is light weight. One could keep this anywhere in his/her garden area and work on. The motive of this work is to design and create a bamboo gym which is light weight home gym, requires less space, with multiple workout options and low manufacturing cost.

## II. LITERATURE REVIEW

Bamboo is one of the former building materials used by homo sapiens. The bamboo stem, has been found into an extended variety of products ranging from household products to industrial applications. Products made using bamboo are, bamboo bi-cycles, bamboo band bells, furniture, charcoal, cutting boards, boats, musical instruments, etc. In basaltic countries of Latin America, bamboo is quite common for scaffolding and housing. In many excessively inhabit localities of the tropics, certain bamboos supply the one suitable material that is adequately cheap and copious to converge the substantial requirement for economical housing. As a matter of fact, bamboo has numerous utilizations far away from imagination. Its uses are wide-ranging and copious.

## III. EXPERIMENTAL PROCEDURE

In Construction process, there is a forethought of the overall headway to make sure the project is finalized in time.'

### *A. Process Chart*

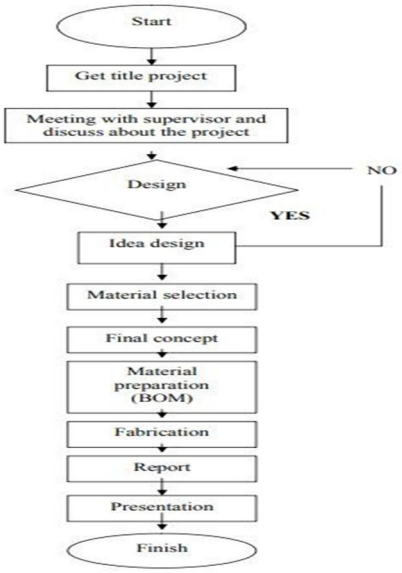



Fig 5: Construction Process

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## IV. DESIGN AND MANUFACTURING

'INSPIRED BY HOME GYM DESIGN' The design of this equipment is very sophisticated with a lot of kinematic and dynamic principles and is very compact. It includes,

*A.* The Bamboo Frame *(as major part),*
*B.* Bamboo Band bell Bar,
*C.* Bamboo Bench *(for bench press)*
*D.* The Rope and Pulley Bamboo Frame
*E.* The Bamboo Roof *(for protection)*

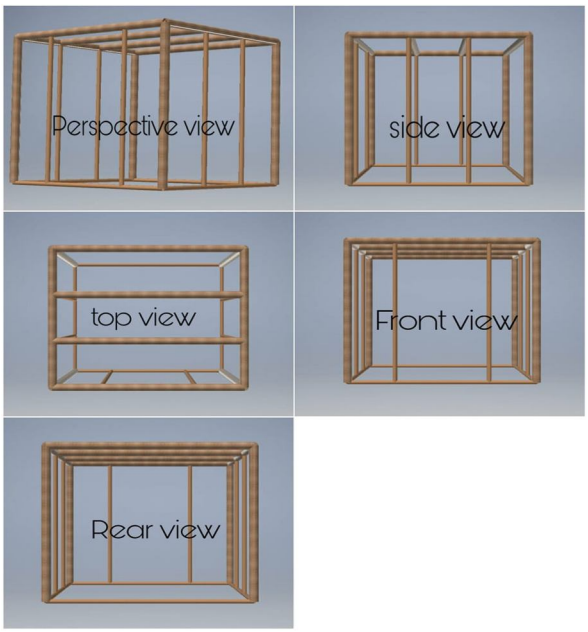



Fig 1: Bamboo Frame CAD design

The "*bamboo frame"* is a foundation of the whole setup. It's made up of bamboo poles and the split bamboo poles. These bamboo poles and split poles are connected to form a strong architecture using nails and binding ropes wherever required. This strong architecture is capable of withstanding the maximum load of 300kg. This frame is a base for all the other equipment. The equipment to be installed over the bamboo frame consists of Bench press, Tri-cep rope extension, Lats cable extension, Chin-up rings, Tri-cep rings, Cable chest extension, etc.



Fig 2: Fabricated Bamboo Frame

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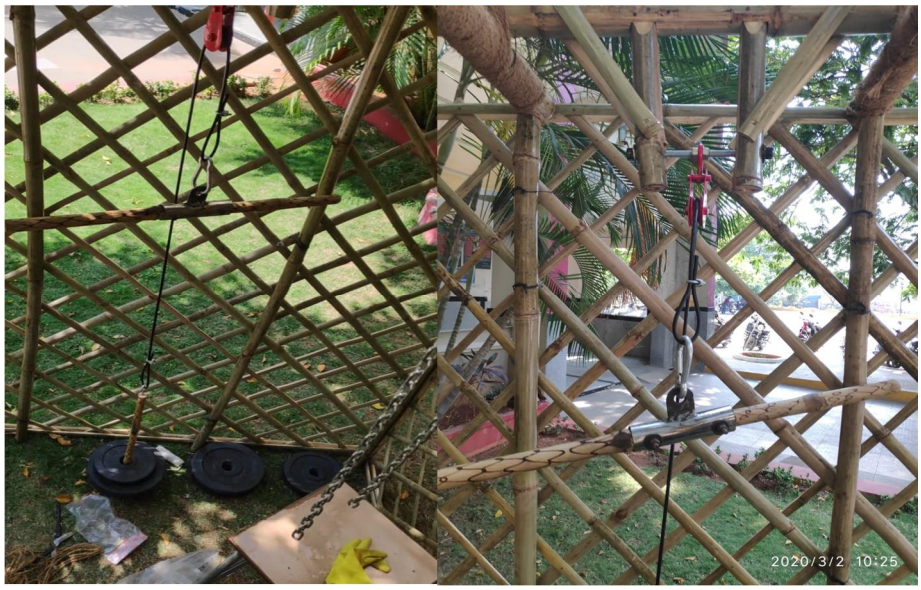



Fig 3: The Rope and Pulley Arrangement.

It consists of a bamboo stick connected to small sticks which are connected using nut and bolt as shown in figure. Again the 9-inch nut is inserted from either way which goes through the pully. Now the cable is attached with weights on one side and the bamboo bar on the other side as shown in the figure. The bamboo stick and an iron 'T' joint is used to lock the applied weights.

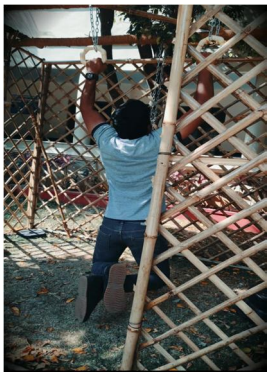


Fig 4: The chin-up rings made of PVC bends and aligned with steel chains.

## V. CONCLUSION

We have designed and manufactured a Bamboo Gym Equipment for house hold purpose which is light in weight, portable and cheaper in cost. This setup can be disassembled and assembled very easily and is capable of providing multiple workout option for an individual.

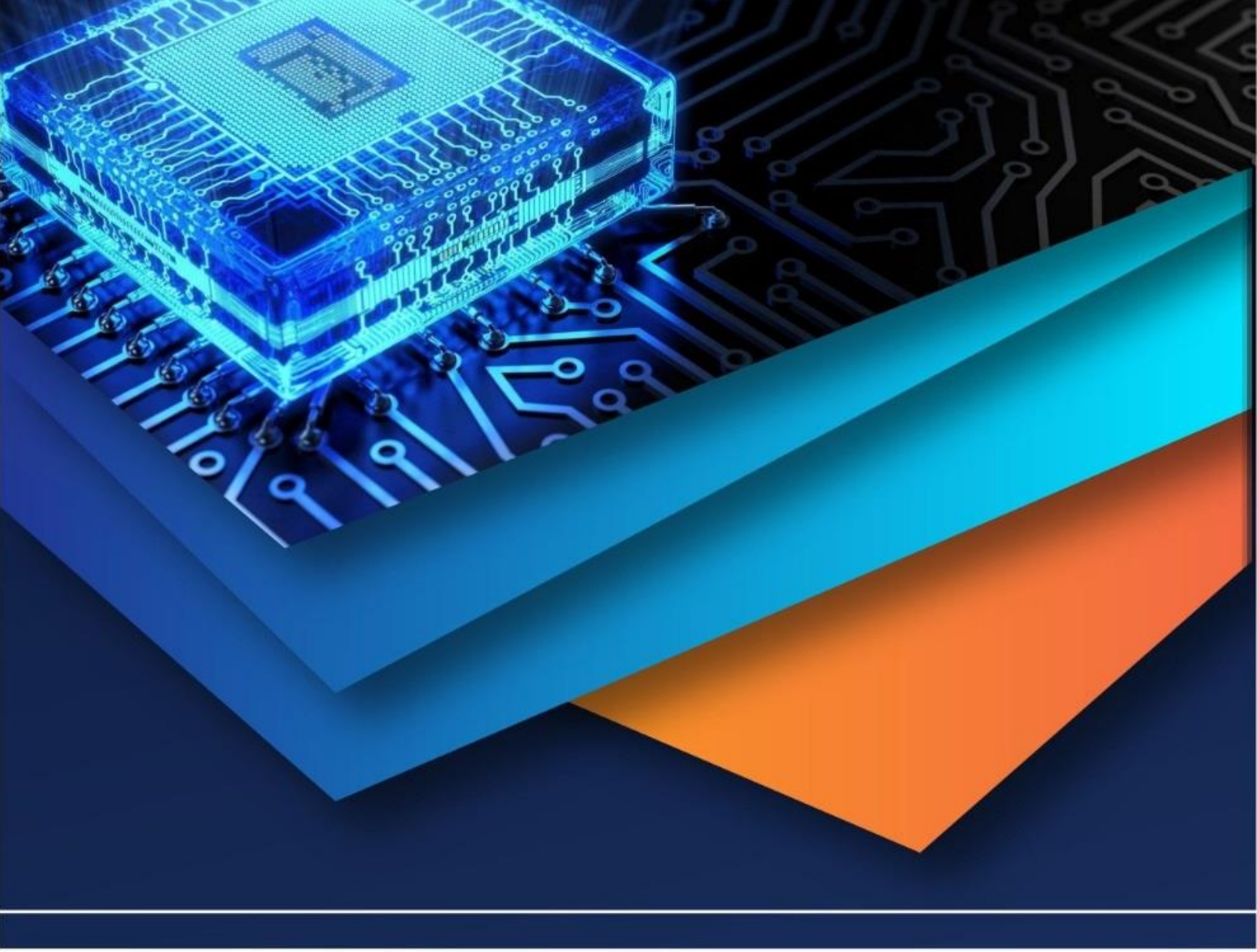
## VI. ACKNOWLEDGEMENT

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We would also like to extend our gratitude to HOD Sir "Dr. DVS Srikanth" for providing us all the facility that was required.
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