

# BANANA SPLIT

RETHINKING THE DESIGN, AND LOAD TESTING  
OF FRAME SUPPORTS FOR BANANAS

## CONCEPT

### TRIANGULATION IN BUILDING STRUCTURES

Triangulation in buildings structures are a popular structural method in construction - for it is known to offer great stability and efficiency in carrying loads. Tall and massive structures, such as in skyscrapers, bridges, and towers, uses triangulation as means of structural integration for stability and load carrying. In small structures, such as residential houses, triangulation is also used for roof framing (trusses and rafters).

A well known structure, the Eiffel Tower, uses triangulation as its main structural integration. It can be observed that use of triangulation in the Eiffel tower, is successful and is efficient; for it is stable enough to tower to a height of 300 meters. It is also important to note its efficiency in load carrying, the structure is made out of iron (which weighs around 7, 300 metric tons), but it still manage tower a great height and support weight of visitors, as well as wind loads directed to it.

### OTHER BUILDINGS.



The Great Pyramid of Giza.



Louvre Pyramid



Cathedral of Brazil

## MATERIALS

The materials used for this project uses scrap materials found inside the household.



### SCRAP PALOCHINA WOOD PLANKS

Used as main structural members, both for base and arms.



### POPSICLE STICKS

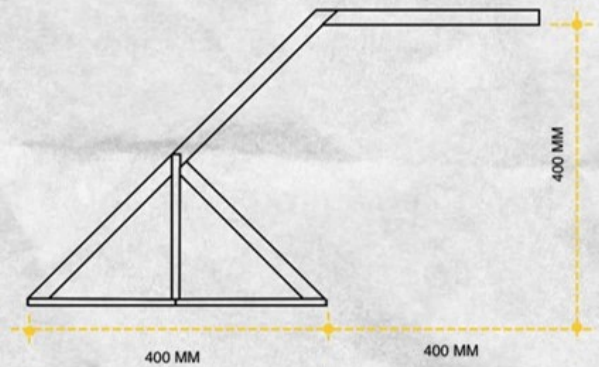
Used as connectors / fasteners in locations in the structural members that needed support, especially connections between structural members.



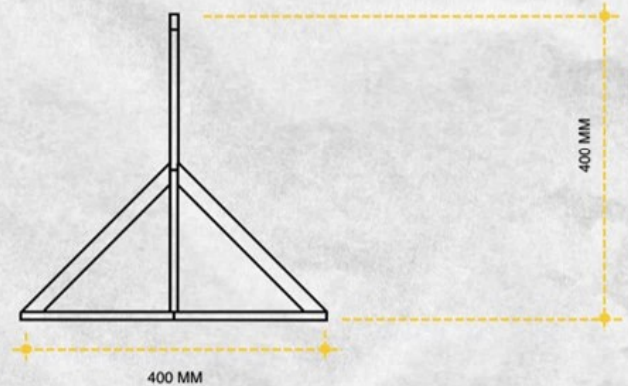
### WOOD GLUE

Used as adhesive for the structural members.

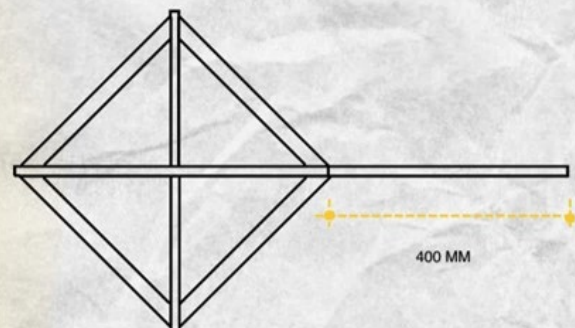
## INITIAL PLANS



SIDE ELEVATION



FRONT ELEVATION



FRONT ELEVATION



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## PROTOTYPE

The prototype weighs around 2 kilograms, with an additional weight of .5 kilograms from the additional wood for weight at the base.



## DOCUMENTATION

### CONSTRUCTION



During construction, scrap wood was cut and sized into shape with the use of a circular saw. The ends of the wood planks were cut as well to the desired angle.

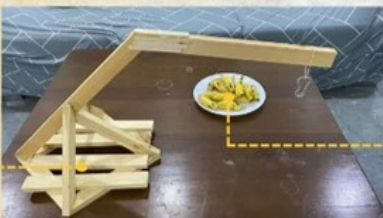
### ASSEMBLY



Wood glue was used as an adhesive to bind the structural members.

Popsicle sticks were used as additional connectors and/or fasteners, most especially to the critical areas of the structural members.

### TESTING

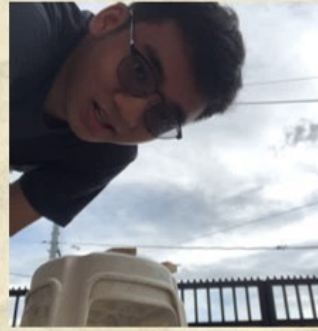


Banana used: Senorita, one and a half seniorita banana approximately equal to 100 grams.

Additional weight was added to the base of the prototype to give an additional load and support during testing.

## VIDEOS

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### ASSEMBLY



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Popsicle sticks were used as additional connectors and/or fasteners, most especially to the critical areas of the structural members.

### TESTING



Strings were added to the banana for it to suspend, as well as a hook was added at the tip of the structural member to carry the banana.

The bananas were carefully hanged one at a time. The bananas were only hanged if the suspended bananas were already stable and stooped moving.

The structure was able to hold a handful of bananas, 5 bananas in total. Additional bananas were added to check for the maximum weight that the structure can carry. It was observed that during the 8th banana, the structure started to tip over - which is roughly around 800 grams.

### OBSERVATION AND RECOMMENDATION

The prototype trial was successful in carrying a handful of bananas, though several observations and recommendations were made:

1. The structure was able to carry just a third of the prototypes weight (800 grams)
2. The materials used and the connections applied are strong enough to handle more weight; though, the weight at the base is insufficient enough to handle more weight.
3. Additional weight at the base should be added in order for the structure to carry more weight.