

# Design and Fabrication of Moskillance (May 2017)

<sup>[1]</sup> Mr.shivasakthi balan, <sup>[2]</sup> Ajay Kumar S, <sup>[3]</sup> Aravind s <sup>[4]</sup> Girish.M.C <sup>[5]</sup> Kishore R, <sup>[6]</sup> Prrassana vegatesh  
<sup>[1]</sup> Assistant professor, <sup>[2]</sup> <sup>[3]</sup> <sup>[4]</sup> <sup>[5]</sup> <sup>[6]</sup> 8th semester  
 Department Of Mechanical Engineering  
 Sri Sai Ram College of Engineering, Anekal, Bengaluru

**Abstract: -- Moskillance is the fully loaded earthmover which able to convert the rain water stagnant into domestic water for the daily use. Moskillance will be the best solution to prevent harmful diseases produced from stagnant rain water. This special earthmover will tend to clean the surroundings by its unique features by absorbing and storing water .Almost 2/3rd of rain water is not being utilized properly in INDIA. We are introducing the best way to implement the specialized mechanical techniques in our prototype**

## I. INTRODUCTION

Recent days our country India is being threatened by various man killing diseases, mainly caused because of rainwater stagnant. The moskillance is a specially designed earthmover which provides the best solution for killing diseases like dengue. This Special earthmover will tend to clean the surroundings from stagnation of rain water by its unique features. Almost the moskillance will work on the principal of hydraulics and pneumatics so they are eco-friendly in nature. It has a special feature of storage of water for recycling purpose.

We are using the most effective absorbing material to extract maximum stagnant water. The truck consist of storage tank which stores the water for the recycling purpose. The truck consist of chain wheels for the easier movement of the truck in improper areas. Keeping the social awareness in the mind we have come out with an innovation which removes the stagnant water and stores it for the further uses. As the stagnant water is being removed many harmful diseases are being prevented and this will be the future of mechanics in all fields.

### 1.2 OBJECTIVE OF THE PROJECT

- Better usage of rain water for the domestic purpose will be achieved.
- By cleaning the surroundings we able to meet swatch bharat.
- Our project could help to reach healthier society.
- With the less utilization of resources we defend more diseases.

## II. DESIGN AND DRAWING

*2.1 First figure shows the 3d design model of our concept.*



The above model is the futuristic one which is being adopted all the available technology within it. The model had been generated with solid works software. But as of now we are trying to come up with our prototype model which will subscribing all main important feature and tend to succeed with completely mechanical.

**2.2 Our prototype model.**



### III. DESCRIPTION OF MODEL

- Rotating roller
- water absorption mechanism
- dripping water into primary storage
- secondary storage/purification
- chassis body

Here in our model the absorbing material plays the vital role .so we are trying to utilize the most advanced kind of sponge material, so called PVA sponge.

#### 3.1 THE UNIQUE BENEFITS OF PVA SPONGE

##### *About PVA Sponge*

PVA Sponge, sometimes referred to as Polyvinyl Alcohol (formalized) Sponge, is a high tech plastic sponge that has many of the same properties and qualities of a natural sea sponge. Static-free and lint-free, PVA Sponge is hydrophilic with porosities from 55% to 95%. The surfaces of each sponge can be engineered for specific applications -- from very smooth pores to large open pores like sea sponges. All deliver an exceptionally high volume and speed of absorption, actually holding many times the volume of liquid compared to a natural sea sponge or sheep-skin chamois. Elasticity and tensile strength properties help provide durability and allow the material to last much longer than other materials. Some of the unique qualities of PVA Sponge include:

- \* Rigid when dry, soft when wet
- \* Very Hydrophilic (it loves water and most liquids)
- \* Holds up to 12 times its dry weight
- \* Non-lifting, non-scratching
- \* Mechanically strong, abrasion resistant
- \* Cells are inter-connected
- \* Non-aging, lasts almost forever
- \* Natural color is white (may be manufactured in many colors)
- \* Excellent color fastness (can also be dyed or silk screened)
- \* Burns without toxic gases
- \* Good chemical resistance including acids, bases, and organic solvents
- \* May be molded or shaped in almost any configuration
- \* Heat resistant to 176oF (80oC) wet, 248oF (120oC) dry

- \* Pore size variable between 60 to 1500 microns
- \* Warm or hot water softens PVA sponge faster than cold water
- \* May be washed by hand or in a washing machine

Applications for PVA Sponge PVA Sponge is used for many consumer, industrial, and o.e.m. (original equipment manufacturer) products, including:

Auto sponges and shammies Cartridge filters and sheet filters Absorption sponges and blocks for wicking excess water and liquids in boat bldges, aircraft, and vehicles Component in hydrogen fuel cell batteries Cosmetic sponges, facial towels, and hair drying towels Medical sponge for eye, nose, and orthopedic surgery Pet cooling and drying towels Sport cooling & drying towels Mops, sponges, and wipes Rollers for drying tennis courts or fruit and vegetables Rollers for coating or drying printed circuit boards Clean room sponges and wipes.

#### 3.2 Good Hand Pedaled Tricycle Drivetrain Design & Ergonomics:



##### **Selecting The Crank Arms (Rule #1)**

Crank arms can be the most trouble to try and find in the right size. Most crank arms that come from bicycles are actually a bit too long for safe use as hand pedal crank arms.

They will often be around 160 mm long (about 6.5") as measured from the center of the hub to the center of the pedal mounting hole.

##### **Gear Sizes For The Pedal Assembly And The Front Wheel (Rule #2)**

Finding appropriate gears for the front wheel and the pedal/crank assembly can be another difficulty. One problem that should be avoided is having a larger gear (with more teeth) on crank than the gear on the front wheel has. This usually means that the trike will be difficult to pedal, unless the ground is very smooth, level and hard. It also means that considerable stress will be put on the arm joints and muscles. Ideally, whatever gears we use, the best solution would be to have a larger gear (more teeth) on the front wheel than the one the crank assembly has. The exact number of teeth is not important here, as long as the gear on the wheel has at least as many teeth as the gear on the crank, or more...even up to twice as many.

#### **Front Wheel Size (Rule #3)**

Front wheel size can have an affect on how easy the trike is to pedal, similar to gear ratio. Without going into too detailed an explanation, a smaller front wheel makes the trike easier to pedal because it has an effect similar to improving the gear ratio, whereas a larger front wheel makes it more difficult.. However, because too small a front wheel will not ride as smoothly on rough terrain and over ruts in the road, there is a practical limit to how small we want to go. As we noted in the "rules", a size between 300mm (12") and 500mm (20") in diameter is usually best in most situations involving rough roads.

#### **Pedal Height (Rule #4)**

The height of the hand pedals, relative to the user's shoulders, is very important. For this reason, any trike design should have a way to adjust the pedal height up and down. Why? In short, the higher a person must reach in order to operate the pedals, the less power they have and the more they will have to strain their joints and muscles. A good rule of thumb is to set the pedal height low enough that the pedals are never much higher than the person's shoulder. See the picture below.



#### **Adjusting The Trike To The Other Anatomical Needs Of The User (Rule #5)**

For the best coverage of the many details of this subject, we would strongly recommend reviewing the DOTT/Sanctus Project Fitting Manual (found on the HWI website) and following the process shown in that manual when fitting the user to the trike. Likewise, the assistance and supervision of a qualified medical person familiar with such issues will prove helpful. For those of us who are designing or setting up a trike design for production, we must be especially careful to design it in such away that.

#### **Pressure Sore Prevention (Rule #6)**

This is perhaps the most important issue of all. Pressure sores, or skin damage caused by sitting in a trike seat for too long that has not been properly padded, can result in infection and eventually death.

What makes this such an important subject to educate trike designers, builders and users on is the fact that most of us never really experience this problem. Whenever we begin to damage our skin somewhere on our bodies, we will usually feel it and stop. If the damage is noticeable, we are aware of it and can usually take care of the wound somehow. Thus, infections are usually easily prevented. However, for someone who has lost some of the feeling in the seat or leg area, this can be a much more serious problem. If the seat area of the trike has not been properly padded (or, if sharp surfaces can cut or scrape exposed skin) then such sore can develop undetected. If they get infected, they may go undetected until a serious or even fatal situation has developed. ese adjustments are as easy to make as possible.

#### **4.cost report for our project**

COMPONENTS	MATERIAL	COST
1. ROLLER	SS PROPRIETARY SHEET	5000
2.ABSORBING MATERIAL	PVA SPONGE	1500
3.CHASSIS	ALUMINIUM	9000
4. STORAGE TANK	SHEET METAL	2000
5. MISCELLANEOUS	*****	2500
<b>TOTAL</b>		<b>=20000</b>

### V. LIMITATION

- Uncontrollable Natural hazard like flash flood, tsunami.etc.,
- Applicable only in monsoon season.
- Government issues.
- Lesser storage capacity.
- Shallower pit.

### VI. CONCLUSION

Keeping the social awareness in the mind we have come out with an innovation which removes the stagnant water and stores it for the further uses. As the stagnant water is being removed many harmful diseases are being prevented and this will be the future of mechanics in all fields. Moskillance is the fully loaded earthmover which able to convert the rain water stagnant into domestic water for the daily use.

Moskillance will be the best solution to prevent harmful diseases produced from stagnant rain water. This special earthmover will tend to clean the surroundings by its unique features by absorbing and storing water .Almost 2/3rd of rain water is not being utilized properly in INDIA. We are introducing the best way to implement the specialized mechanical techniques in our prototype successfully.

### REFERENCE

- Grabcad network page.
- Design data book.P.S.G.tech
- Strength of material.R.S.Kurmi
- Engineer Kevin Nikolich, 2012
- Adirika, Ebue, B, Nnolim, D. O. (1997).
- Aham, A; Max, A. & chinedu N. (2011).