Review on Overhead Water tank Cleaning Mechanism

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Abstract- **Overall purpose for designing & manufacturing a machine was for cleaning overhead water tank. Since we have investigated that the general purpose OHWT which is used by (71%)[6] of people approx. needed to be cleaned more frequency than earlier days where sanitation is done manually twice per year.**

According to our research and survey we found that, the quality of water provided by corporation to the public is decreasing day by day. Because of which dirt sediments, fungus and stains are getting integrated on the inside surface of the tank more frequently like every two months. Nowadays 8 out of 10 household have installed water purifier to the OHWT. As the sedimentation &the growth of fungi and bacteria is increased. We need to design & built a machine which can clean the water tank entirely from inside. The brush would be adjustable as per the diameter of tank and it would remove fungus or algae form on surface of tank and further with the use of a pump the water including dirt and sediments will be flushed out the tank.

Index Terms- OHWT, Sanitation, Sedimentation, Brush

I. INTRODUCTION

Regular cleaning of water tank can prevent contamination of water which can indeed improve the quality of water. There are certain appliances in most of houses which are connected to the overhead water tank and if regular cleaning of it is not done correctly then the damage to the appliances is inevitable .So cleaning the overhead water tank is the most common issue in every single home .There are certain ways to clean the water tank which are implemented by various families like cleaning the water tank manually the person has to get inside the tank and has to clean it by himself which is a very hectic job to do and the efficiency of it is also not that satisfactory plus while cleaning there is a lot of effort required and the inner temperature of tank is not suitable for human beings as the tank is mainly made of plastic and is kept at the terrace where it is in direct contact with sun. So in order to tackle all these problems an automated overhead water tank cleaning can developed for the comfort of human .An automated overhead tank cleaning machine can help to improve the water quality which can prevent many water related diseases from happening . The algae and fungus are the main concern when we speak about cleaning the water tank as the algae and fungus if not cleaned time to time then it will give water a foul odour and can eventually cause bacteria to grow in the water .These two can also be responsible for blockage of pipes, so in order to prevent all these problems an automated water tank cleaning machine can be used for the betterment of human. The cleaning machine is designed for the cylindrical water tanks having the capacity of 500 litres.

1.1 Objective

To reduce human efforts and fatigue caused during cleaning an OHWT.

To prevent early and frequent blockage taking place in the tubes of water filtration system.

To save an amount in the family's annual budget.

To prevent people from using an unhealthy water for various purpose.

II. LITERATURE REVIEW

The author in [1] gives us various concepts regarding Overhead water tank cleaning, the concept the author in [1] gives us various concepts of cleaning tank mechanically with the help of dc gear motor with low speed and concept [2] deals with the brushes which

are made up of polyvinyl chloride, the brush are hard at tip and having good strength

The authors in [2] the basic concept of lead screw and the analysis has been done on the lead screw has been properly studied that at loaded condition the working.

The authors in [3] help in gaining the information about the quality of water and the hardness of water from which we have information about sedimentation and dirt settling on the water tank.

The author in [4] cleared our concept of the geared motor, this motor having high torque but low speed and other specification from which we have selected our dc geared motor which is having speed of 30rpm.

The author in [5] the description is given that the water stored in the tank contain some sediments which settle at the inner periphery of the tank hence plastic tanks are so design that settling of sediment are found in less quantity. Such a we have selected 3 layer plasto tank in which the machine should work in good efficiency.

III. CONCLUSION

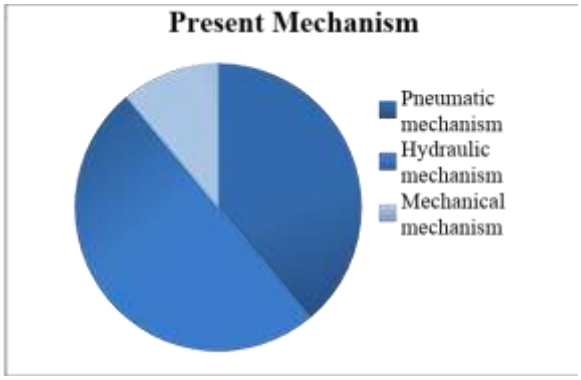

Fig Our findings

35% Mechanism are Pneumatic Mechanism

50% Mechanism are Hydraulic Mechanism

15% Mechanism are Mechanical Mechanism

This equipment design is found to be effective in cleaning cylindrical water tanks. During cleaning the rotating brush needs to move up and down automatically after a period of time with the help a mechanism for complete cleaning with the help of rotating brush'. This method is more effective and safe than the conventional methods. This method is capable to clean water tanks within less time and human efforts. By using that water tank cleaning machine we can reduce the time consumption for water tank cleaning.

This water tank cleaning machine is easy to operate as compare to manual cleaning. The weight of that machine is low and as compare to manual cleaning cost for cleaning is low. The main outcome of that machine is reduced the time consumption for the process and it gives the quality result.

VI. RESULT

Now taking into consideration the pneumatic and hydraulic mechanisms which are proving to be more complex in design, expensive to manufacture, difficult to handle and having more maintenance hence, we decided to make our mechanism of mechanical type which can be less complex, easy to handle, cost effective, more efficient and maintenance free.

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