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PORTABLE WATER TANK CLEANER

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Abstract

Aim of this project is to develop a mechanical system for cleaning domestic cylindrical water tanker. The mechanical system includes simple mechanism with centrifugal force. The purpose of this project is to reduce human effort, time and avoid exposure to chemical influence on a health of person entering into the water tank for purpose of cleaning.

1. INTRODUCTION

In a recent research it was discovered that no robot-based machine is used as part of cleaning the upper tank. Every day the water stored in the tank is use for domestic and industrial purpose. Over the period of time residues sludge and scale deposition gets formed on the inner walls and floors of the tank. The sediments contaminate the water make it unfit to use. Bacterial growth in water can cause infection and can spread diseases. Hence, cleaning and maintenance of water tank regularly is absolutely necessary. The traditional methods of manual scrubbing has become redundant. Labour intensive. To overcome this we have tried to solve the is advantages of cleaning the tanks so the portable cleaning up the upper tank the system is designed to provide safety, efficiency, less time for cleaning. The aim of this project is to clean domestic water tank with the help of a mechanical system.

2. RELATED WORK

This section presents the critical analysis of existing literature which is relevant to water tank cleaning system and its mechanism. Though the literature consists of a lot many research contributions but here we have analyzed researched and review papers. The existing approaches are categorized based on the basic concepts involved in the mechanism. The emphasis is on the concepts used by the concerned authors. Finally, the findings are summarized related to studied and analyzed research papers. Section concludes with the motivation behind identified problem.

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Davis,—J.And Lambert, R., [2002] states that there are three conventional steps to disinfect a water tank. Cleaning the tank keeps the tank empty. Open the valve / tap socket, and remove any remaining liquid. Clean all surfaces at the inside. Using a combination of detergent and water to purify all the tank's internal surfaces. Chlorine testing refill the tank with clean water and allow for 30 minutes of standing. Ahmad stated that the provision of clean water is critical **fo**people's health. Water supply is distributed through tanks for water storage. Sediment that accumulates in water storage tanks over time will deteriorate the quality of water used by the consumers. Water storage tanks are required by water utilities operators or tank cleaning service providers to clean once in every three years.

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3. IMPLEMENTATION

This section presents the formulation of the identified problem which based representation of an water tank cleaning system all the reviews on theoretic approches involve the same common terminologies, The main objective of this

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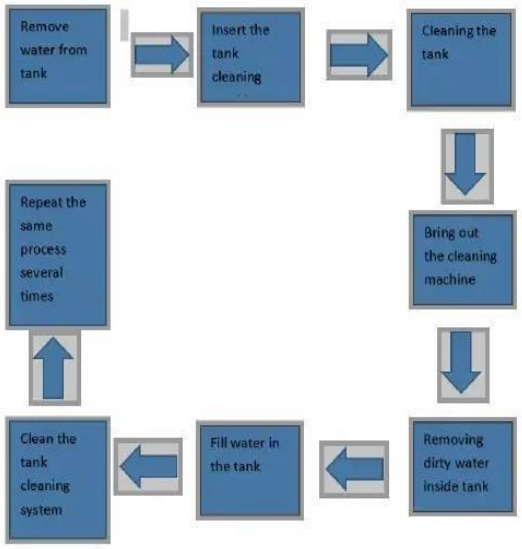
project is to clean the water tanker by using the rotating mechanism.Most of the existing solutions are on manual scrubbing in which walls and floor of tank are scrubbed to remove dirt, fungus, and stains. These methods are done by the help of labours entering into the tank and cleaning it manually by chemicals.Manual chemicals of tanks is dangerous to the labours because they clean by using chemicals which affect the human health.These existing methods require more efforts for cleaning.Dirt cannot be cleaned effectively by manual cleaning and the tanks cannot be cleaned repeatedly by the labours.

The PVC pipes are connected with the connectors and the brushes are mounted to the pipes. A 500 rpm rotating motor is connected to the pipes setup. The DC motor is controlled with the 14V battery. The connection is done with this setup. Scrubbing wall (edge to edge), the machine is positioned to clean the other faces of the tank respectively. This procedure can be repeated for two to three cycles for complete cleaning of the tank with reduced time and effort. The entire tank can be cleaned efficiently with minimum human interference.



Block Diagram

It is easy to clean the tanks by using this machine. We can avoid labour work and manual cleaning by introducing this mechanismWe can save the time.It is of low budget.It is more efficient and secure.

4. EXPERIMENTAL RESULTS

An automated tank cleaning machine is a machine used to clean the overhead tanks such those found to store the water. Tanks must be cleaned from time to time for various reasons. The main reason is to clean the tank is allow to gets fungus. Thus the tank is to be inspected or maintenance to be performed regularly.

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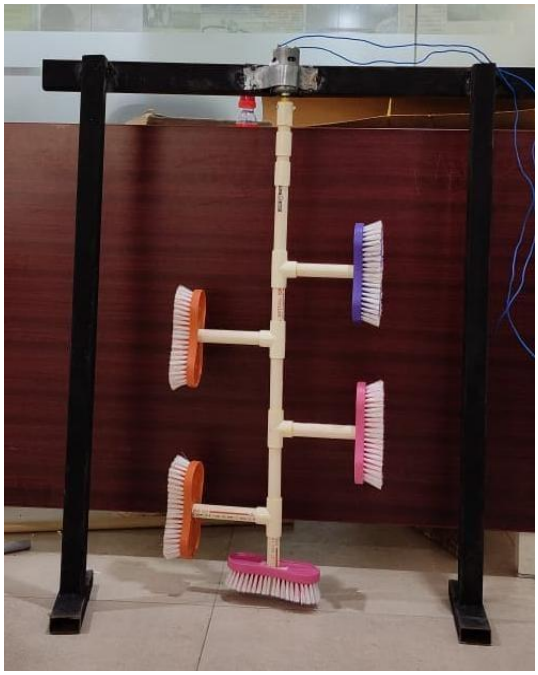

5. CONCLUSION

The water tank cleaner was used to clean the water tanks by using rotating brushes. This method was more effective and safe than the conventional methods. This method is capable to clean water tanks within less time and human efforts advanced model for tank cleaning system is cleaning the tanks thus making the operation user friendly. The working prototype is promising both in terms of imparting cleanliness and avoiding excess manpower. The future scope of the project is to extend it with auto feeding mechanism by which the man power involved in feeding gets removed. Through the help of the auto feed mechanism it is easy to clean the tanks without excess man power. The project can be even extended to increase the cleanliness of the tank by insulating the frame and other components using stainless steel.

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