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Sewage cleaning system

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Abstract : In today's era automation plays a very important role in all engineering applications for the proper disposal of sewage from industries and household is still a challenging task. Drain pipes are used for the adequate disposal of waste and unfortunately sometimes there may be a threat to human life during the cleaning of blockage in the drain pipes or it can cause serious health issues because of the pertaining problems like malaria, dengue, etc. In order to overcome this problem as well as to save human life we implement a design "Sewage or Drainage Cleaning System". We designed our project in order to use it in an efficient way to control the disposal of waste along with regular filtration of drains, cleaning of solid waste in order to avoid blockage in drains to promote continuous flow of drainage water which ultimately reduces the threat to human life. So, we are making a sewage or drainage cleaning machine.

IndexTerms **- Sewage,Drainage,Clean,Waste,Drains.**

INTRODUCTION

As today's era is moving towards being digitalized and automated with a great speed, the youth want everything very easily and

smart. Not only the youth but the people of all generation are finding it very easy to be smart effort and more and more being healthy and are getting attracted or joined towards latest technology of being “smart work”. Anywhere you go, you get this technology available. So we thought of using this technology and adding more to it for our final year project. Nobody likes to suffer and wait for our long waiting hours just to get good surrounding or so. To avoid this and to save time of our management of waste we are creating a application called “Sewage or Drainage Cleaning System”. Sewage or Drainage Cleaning System proposed to overcome the real time problems. With the continued expansion of industries, the problem of sewage water must be urgently resolved due to the increasing sewage problems from industries of the surrounding environment. The waste and gases produced from the industries are very harmful to human beings and to the environment. Second Important thing is waste management system by which worker can maintain all his health and work good through application maintain that reporting worker don’t need to wait and get in to drainage. One more very useful and important advantage of our system is that the worker to replace the manual work in drainage cleaning by fully automatic drain cleaner. And can access them very easily. It also overcome all sorts of drainage problems and promotes blockage free drains promoting the continuous flow of the water. In the modern era there have been adequate sewage problems where sewage water needs to be segregated to clean our surrounding environment. The proper disposal of common wastes is still a challenge faced nowadays, even though automation also plays a vital role in the industrial and commercial applications. Usually what we see in a country like India is that common wastes like plastic bottles, polythene, covers, sanitary pads, etc and others are left in the streets and in the open drains. These waste particles obviously cause blockage of the drainage system during monsoon season when there is a flow of water through the roads and drainage systems. Also, where the closed drainage system open near a river causes the pollution of river. Sewage cleaning system. 2023 B.E. Mechanical, Nashik 2 This blockage of drainage system can cause accumulation of waste water in these drains. Several waters borne diseases such as cholera, worm disease, typhoid, malaria etc will occur due to the contamination of these stagnant water. This can cause many health issues and may even lead to deaths, other than the local common issues caused by the blockage of drainage. In India, there is no existing automated mechanism by which this blockage of drainage can be removed. Currently these blocked drains are cleared with the help of manual workers were the workers have to get into the drains and manually remove the wastes. In such situations the rate of diseases spread among these workers are high and this affects their life’s and reduces their immunity. As a solution to theses social relevant problems and as a solution to the health issues caused thereby, we propose an automated mechanism, “Sewage or Drainage Cleaning mechanism”. Our proposed system is used to clean suspended wastes from water like polythene, bottles etc. present in drains eliminating the human labour involved in doing. this can be used to overcome the problem of filtration of the wastes from water and it save the time and cost that spend on cleaning the drainage holes.

NEED OF THE STUDY:

Studying the project of a sewage cleaning system is imperative for several compelling reasons. Firstly, it addresses critical environmental concerns by ensuring that pollutants and contaminants present in sewage are effectively removed before being released into natural water bodies. This is vital for preserving aquatic ecosystems and safeguarding biodiversity. Secondly, such studies are crucial for public health reasons, as untreated sewage can harbor harmful pathogens and diseases, posing significant risks to human populations if not properly managed. By understanding and developing efficient sewage cleaning systems, we can mitigate these health hazards and promote community well-being. Moreover, research in this area facilitates the efficient use and management of resources. Sewage contains valuable materials such as water, nutrients, and energy, which can be recovered and reused through advanced treatment processes. This not only conserves resources but also promotes sustainability. Furthermore, studying sewage cleaning systems contributes to infrastructure improvement efforts. By innovating technologies and processes, we can enhance the performance and resilience of sewage treatment facilities, ensuring their long-term viability. Additionally, compliance with stringent regulatory standards is another crucial aspect that necessitates research and study. Understanding the latest regulations and developing technologies that meet or exceed these requirements is essential for legal compliance and environmental protection. Ultimately, studying the project of sewage cleaning systems fosters innovation, sustainability, and the

collective effort towards a cleaner, healthier environment for present and future generations.

RESEARCH METHODOLOGY

In the present chapter the contribution made by different researches and authors in the field of drainage / cleaning system were enlist in short. It includes the methods, mathematical modelling, software's. the literature is based on drainage cleaning system finally the summery of literature reviewed was added. Ganesh U L, Vinod V Rampur, done the work on, Semi-Automatic Drain for Sewage Water Treatment of Floating Materials, according to his study, the proposed concept is to replace the manual work in drainage cleaning by mechanical drain cleaner. Now-adays even though mechanical drainage plays a vital role in all industrial applications in the proper disposal of sewages from industries and commercials are still a challenging task. Drainage pipes are using for the disposal and unfortunately sometimes there may be loss of human life while cleaning the blockages in the drainage system. To overcome this problem and to save human life we implement a design "mechanical semi-automatic drainage water cleaner" and we designed our project to use this in efficient way to control the disposal of wastages and with regular filtration of wastages. The Drainage system cleaner is a machine which helps to protect the environment from different kinds of environmental hazards through the promotion waste management by the removal of garbage from the drainage system. These wastes when not removed end up settling in residential places where these wastes are burnt thereby causing climate change otherwise these wastes block the drainage systems thereby causing flooding.

[1] B.Babu, P.Raja, A.Anand Jayakumar , done the work on, Design And Development Automatic Sewage Cleaning Machine, according to his study, Traditional method for disposal sewage waste is carried over by manual scavengers where they get inside the maintenance whole pit. It has been estimated 1.24 million scavengers in the country are involved in the sanitation of our surroundings. In Manual scavengers mainly used for basic tools such as a bucket lined with a sack and a handle. The worker then carries the waste manually in bare hands and takes it to the disposal sites. Here scavengers are exposed to gases such as hydrogen disulfide, carbon (IV) oxide, ammonia, and methane. Prolonged exposure to hydrogen disulfide can lead to death by asphyxia. In Sewage cleaning system. 2023 B.E. Mechanical, Nashik 6 individual may experience epileptiform convulsions and may fall unconscious and later die. The gas is also associated with visual acuity. To eradicate this condition, manual scavenging is replaced by machines. This machine removes solid waste and again to suck away the liquid sewage. The primary function of the sewage cleaning machine is to collect, transport as well as to dispose of the solid waste in the waste bucket by the help of claws. Solid waste in drainage includes empty bottles, polythene bags, papers etc. The continuously cleaned in the drainage with the help of a model using this drive system to remove the solid waste and threw it into a waste bucket.

[2] Prashant D. Chaudhari, Gaurav S. Gajare, done the work on, Design and Fabrication of Semi-Automated Drainage Cleaning System, according to his study, The research paper focuses on replacing the manual method of cleaning the drainage system with the semi-automated mechanical drainage cleaner. The method followed nowadays is proving to be the health hazard for the worker undergoing the process of cleaning the drainage. Along with the drainage water some solid waste travels through the drainage line and at the junction points of drainage system these solid waste gets accumulated over time and thus causes the blockage of system. This urges the need of timely cleaning of drainage lines. So this system will help to resolve the problem and will thus help in ensuring the timely cleaning of the system by segregating the solid waste. From this project it is concluded that DCM is helpful for separating solid waste from the drainage water which will further avoid the blockage of drainage line and avoid flooding. Due to continuous rotation of the chain the lifter timely collects all the waste and thus avoids the blockage by separating solid waste from the liquid. Separation of these solid waste helps in treating the solid waste and thus converting it into degradable waste. Being light in weight this kind of system can be placed at the junction points of the drainage system that are frequently subjected to blockages. The system functions more effectively during the heavier rains which has more volume of garbage with high velocity running water through the drainage lines.

[3] S. Ramanathan, R. Sudharshan, Karthik B, A. Mohammed Suhail, S. Chiranjeev, done the work on, Sewage Cleaning Machine, according to his study, The earliest form of sewer cleaning was hand excavation whereby labourers loaded sediment into barrows which were moved down the sewer and then lifted out at manholes by bucket. The Sewage cleaning system. 2023 B.E. Mechanical, Nashik 7 work is not only dirty, unpleasant and dangerous. The major problem in manual scavenging is the health issues faced by the workers and more over the cleaning is done by human beings because of earning. Nowadays even though automation plays a very important role in all industrial applications, the proper disposal of sewages from industries and commercials are still a challenging task. Drainage cleaning system is proposed to overcome the real time problems. In this project our aim is to replace the manual work in drainage cleaning by introducing a semi- automated system in an efficient way to control the disposal of wastages and with regular filtration of wastages. In our model, a pneumatic piston is connected in a wire rope which in turn is coupled with kinematic linkages.

The linkage from the frame is to be submerged into the sewage. When the pneumatic piston is actuated, the grippers which are provided at the bottom expand and collect the solid wastes from the sewage. Ultimately our motto is to fabricate a machine which is cost effective as well as efficient in working. Automation is a technology concerned with his application of mechanical, electronic and computer-based systems to operate and control production. Our aim is to fabricate and automate a machine at a lower cost which would benefit the manual scavengers. By implementing this concept of drainage cleaning method there will be reduce in the manual scavengers in our country which reduces the health hazards for humans thereby reducing the environmental pollution in our country.

[4] Ajay Sharma, Ankur Singh, Mahipal Singh, done the work on, Automatic Drainage Cleaning System, according to his study, in this project we proposed the concept of "Automatic Drainage Cleaning System", which replace the manual work of cleaning drainage by humans. Automatic Drainage Cleaning System (ADCS) proposed to overcome the real time problems. This system is used for automatic cleaning of drainage. This proposed system uses an automatic drain cleaning system that lets fluid flow through it but catches large solid waste like bottles, plastic and accumulates it. Labor cleaning drainage leads to a high risk of them catching infections or poisoning due to large amount of waste/chemical in them.so for reducing work of humans and analyzing several problems, we proposed our project ADCS. The problem of drainage blockage due to plastic waste and other solid waste can be eliminated by using of ADCS system. Cleaning of drains/gutters has always been a problem. Labors cleaning gutters & drain seems unethical and also leads to a high risk of them catching Sewage cleaning system. 2023 B.E. Mechanical, Nashik 8 infections or poisoning due to large amounts of waste/chemicals in them. So here we provide a fully automated drain gutter cleaning mechanism to tackle these modern-day gutter jamming issues. Our system uses an automated gutter/drain cleaning system that lets fluids flow through it but catches large solid waste like bottles & plastic and accumulates it. So gutter cleaners need to just clean these gutter cleaning systems installed at points instead of cleaning entire gutter floors.

[5] S. Jayasree, Dr. Smt. G. Prasanthi, done the work on, Fabrication of Automatic Sewage Cleaning System, according to his study, Now a day’s automation gives the solution to all the problems and increases the chance of getting better accuracy in all industrial applications. But still it is not possible to get the better result in the issue of industrial drainage system and it is a challenging task to design the safe drainage system with optimum design. Drainage pipes are used for the disposal and unfortunately sometimes they may be loss of human life while cleaning the blockages in the drainage pipes. To avoid this risk and also reduce the time of cleaning the drainage automated sewage cleaning system is designed based on the problems faced by the people. In this work automation approach will be used instead of normal cleaning method which will be designed to control the disposal of wastage in efficient manner. For control, the wastage regular filtration method may be used. IOT means internet of things. Here as and when the dustbin get filled up, a sms message is sent to the registered mobile number of the person. So cleaning of dustbin is done at the right time. Modern services are becoming polarized. With the emergence of more and more automatic terminal services, modern services are also gradually becoming unmanned. Thus this semi automated sewage cleaning system helps in cleaning the sewage automatically and helps in decreasing the spread of diseases due to direct human intervention into the sewage. Integrating features of all the

hardware components used have been developed in it. Presence of every module has been reasoned out and placed carefully, thus contributing to the best working of the unit. Thus the project has been successfully fabricated and tested.

[6] Ganesh S. Patil, Rahul A. Pawar, Manish D. Borole, Shubham G. Ahire, Ajay L. Krishnani, Amit H. Karwande, done the work on, Review Paper on Drainage Water Cleaner Machine, according to his study, Water is the basic need for the existence of Sewage cleaning system. 2023 B.E. Mechanical, Nashik 9 life on earth. In spite of 70% water on earth majority of water is not suitable for drinking purpose. There is a huge demand of clean water as it is used for a variety of purpose such as drinking, bathing, cleaning, cooking etc. Impurities present in water can cause serious health issues that can damage the life of human beings. Wastewater is characterized as the stream of utilized water from homes, organizations, ventures, business exercises and foundations which are subjected to the treatment plants by a precisely planned and built system of funnels. The measure of stream dealt with by a treatment plant shifts with the season of day and with the times of the year. The procedures looked into here incorporate both those that expel poison soils in wastewater and those that vanishes them. Utilizing a wastewater treatment innovation that expels, instead of decimates, a toxin will give a treatment remains. This sort of wastewater is characterized and characterized by its wellsprings of cause. Regularly 200 to 500 liters of wastewater are created for every individual associated with the framework consistently. At wastewater treatment plant, this stream is dealt with before it is permitted to be come back to the earth. There are no occasions for wastewater treatment, and most plants work 24 hours each day of the week. Wastewater treatment plants takes a shot at basic purpose of the water cycle, helping nature shields water from the intemperate contamination. Most treatment plants have essential treatment and auxiliary treatment.

[7] Vijay Rajendra Nikam, Kawale Rohit Kailas, Patil Hemkant Rajendra, Kumbhar Roshan Dattatray, Prof. Satish Damodar Shewale, done the work on, Automatic Drainage Cleaning System, according to his study, Water is the basic need for the existence of lifeon earth. In spite of 70% water on earth majority of water is not suitable for drinking purpose. There is a huge demand of clean water as it is used for a variety of purpose such as drinking, bathing, cleaning, cooking etc.. The chief function of the automatic drainage system is to collect as well dispose the solid waste to the waste bucket with the help of forks. Solid waste in drainage water includes empty bottles, polythene bags, papers etc. Impurities in drainage water can lead to blockage of the drainage system. In order to avoid such situation these impurities are needed to be taken out time to time for the continuous flow of drainage water. Drain can be cleaned continuously by the help of model using the drive system to remove the solid waste and threw it on roller conveyor to flow with it towards damping ground . This Sewage cleaning system. 2023 B.E. Mechanical, Nashik 10 project is designed with the objective to initiate the efficient working of system. This project automatically cleans the water in the drainage system each time any impurity appears, and forks which are driven by chain sprocket grasp the solid waste and threw it on roller conveyor to avoid blockage. It even reduces the cost of manual labour as well as reduces the threat to human life.

[8] M. Mohamed Idhris, M.Elamparthi, C. Manoj Kumar, Dr. N. Nithyavathy, Mr. K. Suganeswaran, Mr. S. Arunkumar, done the work on, Design and fabrication of remote controlled sewage cleaning machine, according to his study, The motive of the project is to automate the sewage cleaning process in drainage, to reduce the spreading of diseases to human. The black water cleaning process helps to prevent pest infestations by reducing the residues that can attract and support pests. It also improves the shelf life and sensory quality of food products. In the proposed system, the machine is operated with remote control to clean the sewage. Hence, this system avoids the impacts from the sewage waste and its harmful gases. This helps to prevent the mosquito generation from the wastage. The system has a wiper motor that starts running as soon as the set-up is switched on. Two power window motors are connected to the wheel and it is driven with the help of the remote control set-up. The process starts collecting the sewage wastes by using the arm and it throws back the waste into the bin fixed in the machine at the bottom. An arm is used to lift the sewage and in turn a bucket is used to collect them. The set-up runs even in sewage area with water (limited to a particular amount) so that the wastages which floats on the water surface also gets collected. The garbage which affects the drainage is also picked up and removed. This system has limited human intervention in the process of cleaning and in turn reduces spreading of diseases to mankind.

PRIOR WORK

The groundwork laid by prior projects focused on sewage cleaning systems forms a crucial foundation for ongoing and future research in this field. These previous endeavors have encompassed a range of activities, from fundamental research to applied technology development and implementation. Early projects likely involved extensive studies to understand the composition of sewage, its sources, and the contaminants it carries. This initial research provided insights into the challenges associated with sewage treatment and the potential environmental and public health risks posed by untreated waste. Building upon this knowledge, subsequent projects likely focused on developing and testing various treatment technologies and processes. These efforts aimed to improve the efficiency, effectiveness, and sustainability of sewage cleaning systems. Researchers and engineers likely collaborated to design innovative solutions, such as advanced filtration systems, biological treatment methods, and chemical processes, tailored to specific contaminants and local conditions. Pilot-scale and full-scale demonstrations may have been conducted to validate the performance of these technologies under real-world conditions. Furthermore, prior projects likely explored the integration of sewage cleaning systems into existing infrastructure and assessed the economic feasibility and cost-effectiveness of different approaches. By leveraging lessons learned from past experiences and incorporating advancements in science and technology, current and future projects can continue to push the boundaries of sewage treatment, ultimately leading to cleaner waterways, healthier communities, and a more sustainable future.

Prior work on sewage cleaning systems has been extensive and diverse, spanning decades of research, development, and implementation. Early efforts were often focused on basic sanitation and wastewater management, aiming to reduce the health risks associated with untreated sewage. These projects typically involved the construction of basic treatment facilities such as settling tanks and rudimentary filtration systems, which helped remove solid waste and some pollutants before discharge into water bodies. While these methods represented important steps forward in public health and environmental protection, they were often limited in their effectiveness and sustainability.

As scientific understanding and engineering capabilities advanced, subsequent projects began to explore more sophisticated treatment technologies and processes. Biological treatment methods, such as activated sludge systems and anaerobic digestion, gained prominence for their ability to degrade organic matter and reduce nutrient levels in sewage. These approaches relied on microbial activity to break down pollutants, offering more comprehensive treatment compared to earlier physical and chemical methods. Pilot-scale studies and research projects played a critical role in refining these technologies, optimizing operating conditions, and identifying challenges related to scaling up to full-size treatment plants.

In parallel, research efforts focused on developing advanced filtration and separation techniques to remove suspended solids, pathogens, and trace contaminants from sewage. Membrane filtration technologies, including microfiltration, ultrafiltration, and reverse osmosis, emerged as effective means of producing high-quality effluent suitable for reuse or discharge into sensitive environments. These membrane-based systems offered greater flexibility and efficiency compared to traditional sand or gravel filtration methods, leading to their widespread adoption in modern sewage treatment plants.

Moreover, prior projects have explored innovative approaches to resource recovery from sewage, recognizing its potential as a source of valuable materials such as water, nutrients, and energy. Techniques such as nutrient recovery through struvite precipitation, biogas production from anaerobic digestion, and water reuse for irrigation or industrial processes have been investigated and implemented in various settings. These initiatives not only contribute to the sustainability of sewage treatment systems but also address pressing challenges such as water scarcity and energy demand.

In addition to technological advancements, prior work on sewage cleaning systems has also emphasized the importance of holistic planning, stakeholder engagement, and policy support. Integrated watershed management approaches, community-based sanitation initiatives, and regulatory frameworks for water quality management have been integral to the success of sewage treatment projects worldwide. By considering social, economic, and environmental factors alongside technical considerations, these projects have been able to achieve lasting improvements in water sanitation and public health outcomes.

Overall, the prior work on sewage cleaning systems represents a multifaceted and dynamic field of study, characterized by continuous innovation, collaboration, and adaptation to evolving challenges and opportunities. By building upon the knowledge and experiences gained from past projects, future efforts can further advance the state of the art in sewage treatment, paving the way for cleaner, healthier communities and a more sustainable relationship with our water resources.

CONSTRUCTION :

We are trying to build a Sewage or drainage cleaning system which will reduce manpower for removing waste from drainage holes. Basically, we will integrate the system with the cleaning & waste removal system. main component of system is givenbelow,

D.C. Gear Motor:

A 12V DC wiper motor is adopted to meet the required torque and the varying loads. The motor is attached to a driving shaft, which gives motion to a wiper system. The DC Motor are used to move the shaft from starting to end position of the brushes and the brushes rotates continuously based on the input power which it receives from the DC Motor to clean the drainage holes. The two rotary brushes are used to clean the drainage holes in vertical wall positions. A shaft is used to hold the brushes in side positions. Gear motor is used to produce high torque with low speed for drainage wall cleaning. DC motor used has specifications as 12V, 5A which produces power of 50 watt and the shaft speed is 60 rpm.

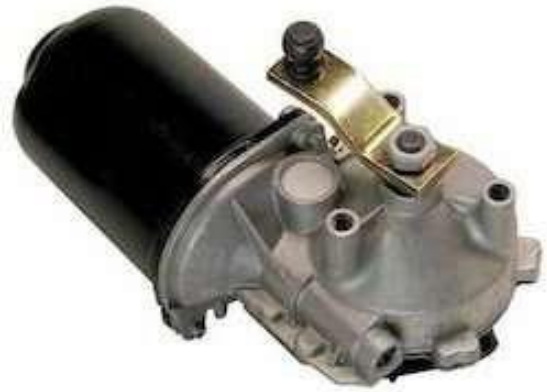

Fig. D.C. Gear Motor.

Gear drive:

A gear is a rotating machine part having cut teeth, or in the case of a cogwheel, inserted teeth (called cogs), which mesh with another toothed part to transmit torque. Geared devices can change the speed, torque, and direction of a power source. Gears almost always produce a change in torque, creating a mechanical advantage, through their gear ratio, and thus may be considered a simple machine. The teeth on the two meshing gears all have the same shape. Two or more meshing gears, working in a sequence, are called a gear train or a transmission. A gear can mesh with a other gear for producing rotation of central wiper.

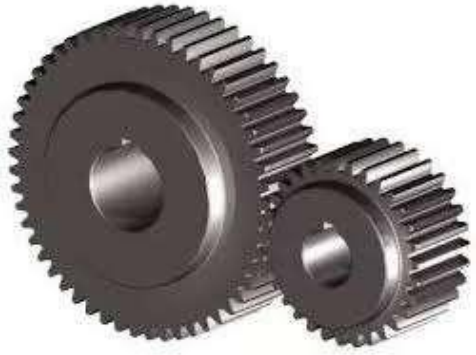

Fig. Gear Drive.

Shaft:

A shaft is a rotating machine element, usually circular in cross section, which is usedto transmit power from one part to another, or from a machine which produces power to a machine which absorbs power. Shafts are generally formed by hot rolling and finished to size by cold drawing or turning and grinding. Shaft is a common and important machine element. It is a rotating member, in general, has a circular cross- section and is used to transmit power. The shaft may be hollow or solid. The shaft is supported on bearings and it rotates a set of gears or pulleys for the purpose of power transmission.

Material for Shafts:

The ferrous, non-ferrous materials and nonmetals are used as shaft material depending on the application.

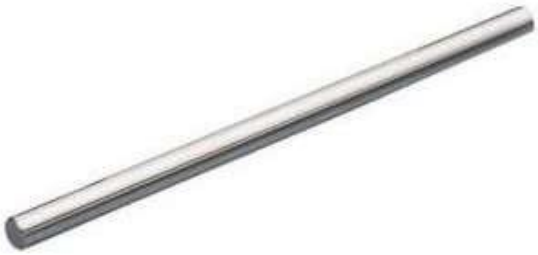

Fig. Shaft.

Pedestal bearings*:*

A ball bearing is a type of rolling-element bearing that uses balls to maintain the separation between the bearing races. The purpose of a ball bearing is to reduce rotational friction and support and axial loads. It achieves this by using at least three races to contain the balls and transmit the loads through the balls. In most applications,one race is stationary and the other is attached to the rotating assembly (e.g., a hub or shaft). As one of the bearing races rotates it causes the balls to rotate as well. Because the balls are rolling, they have a much lower than if two flat surfaces were sliding against each other. Ball bearings tend to have lower load capacity for their size than other kinds of rolling-element bearings due to the smaller contact area between the balls and races. However, they can tolerate some misalignment of the inner and outer races.

This type of bearing consists of i) a cast iron pedestal, ii) gun metal, or brass bush splitinto two halves called “brasses”, and iii) a cast iron cap and two mild steel bolts. The detailed drawing of a pedestal bearing is shown in image below. The rotation of the bush inside the bearing housing is arrested by a snug at the bottom of the lower brass. The cap is tightened on the pedestal block by means of bolts and nuts. The detailed part drawings of another Plummer block with slightly different dimensions are also shown in image below.

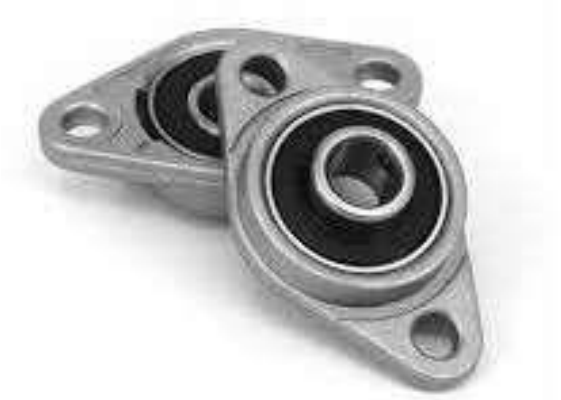

Fig. Pedestal bearing.

Washer:

A washer is a thin plate (typically disk-shaped) with a hole (typically in the middle) that is normally used to distribute the load of a threaded fastener such as a screw ornut. Other uses are as a spacer, spring (wave washer), wear pad, preload indicating device, locking device, and to reduce vibration (rubber washer). Washers usually have an outer diameter (OD) about twice the width of their inner diameter (ID). Washers areusually metal or plastic. High quality bolted joints require hardened steel washers to prevent the loss of pre-load due to Brinelling after the torque is applied. Rubber or fiber gaskets used in taps (or faucets, or valves) to stop the flow of water are sometimes referred to colloquially as *washers*; but, while they may look similar, washers and gaskets are usually designed for different functions and made differently. Washers are also important for preventing galvanic corrosion, particularly by insulating steel screws from aluminum surfaces

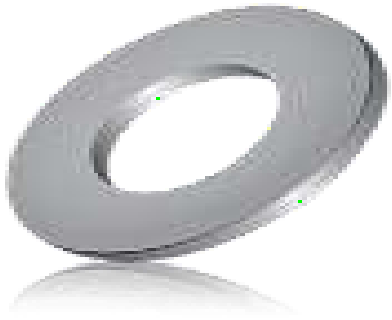

Fig. Washer.

Nut and Bolt:

As nuts and bolts are not perfectly rigid, but stretch slightly under load, the distribution of stress on the threads is not uniform. In fact, on a theoretically infinitely long bolt, the first thread takes a third of the load, the first three threads take three-

quarters of the load, and the first six threads take essentially the whole load. Beyond the first six threads, the remaining threads are under essentially no load at all. Therefore, a nut or bolt with six threads acts very much like an infinitely long nut or bolt.

Fig. Nut and Bolt.

Frame:

Mild steel angle or pipe is used for construction of frame supporting the main and auxiliary components. DC motor, gear drive, shaft & bearings which gives the rotationto the main cleaning mechanism will fixed on frame.

12 Volt transformer:

Voltage transformers (VT), also called potential transformers (PT), are a parallel-connected type of instrument transformer. They are designed to present a negligible load to the supply being measured and have an accurate voltage ratio and phase relationship to enable accurate secondary connected metering.

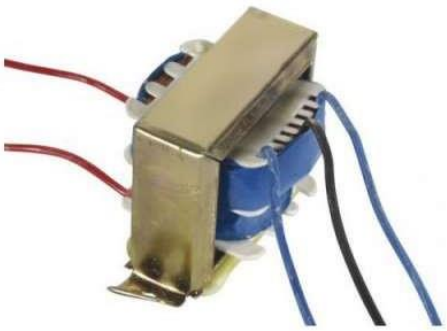

Fig.12 Volt transformer.

IV. WORKING

The drainage cleaning mechanism is used to carry out any floating or sub-floating particles by immersing the equipment into the drainage system. Here the mechanism isplaced into the drainage water in such a way that the drive portion is placed in the flowof the stream in drainage holes. From our surveys, it was found that the drainage system's actually does not have any standard dimensions; that is the width and the depth of the drains are varied according to the parallel road networks, e.g. the size of a drain in the urban areas will be much larger than the drains in the rural areas. The mechanism is basically designed to remove out the solid wastes of the running drains and hence cleaning the possibility of any blockage of the flowing waste water. Drainage cleaning mechanism is used to take out garbage's by simple immersing equipment into drainage.

We designed our project to use this system efficient way to control the disposal of wastages. The system has a dc motor that starts running as soon as the set-up is switched ON. DC motors are connected to the spur gear drive and it is run the stirrer blade to clean garbage form bottom of drainage. A wiper blades are used for cleanwall surface of the sewage. This system has limited human intervention in the process of cleaning and it turn reduces spreading of diseases to man who clean the drainage. Thus, by combining a mechanical and an electrically integrated system we obtain a mechanism that is very much efficient and effective in cleaning the waste particles from the drainage system.

CONCLUSION :

In conclusion, the project of sewage cleaning systems stands as a testament to human ingenuity and commitment to safeguarding public health and the environment. Through decades of research, development, and implementation, scientists, engineers, policymakers, and communities have collaborated to tackle the complex challenges posed by wastewater management. From basic sanitation efforts to sophisticated treatment technologies, the evolution of sewage cleaning systems reflects a continuous quest for innovation, efficiency, and sustainability. By leveraging advanced filtration, biological treatment, and resource recovery techniques, modern sewage treatment plants are capable of producing high-quality effluent while minimizing environmental impact and maximizing resource recovery. Moreover, integrated approaches to watershed management, stakeholder engagement, and policy support have been instrumental in ensuring the success and long-term viability of sewage cleaning projects. As we look to the future, the project of sewage cleaning systems will undoubtedly continue to evolve in response to emerging threats such as urbanization, climate change, and population growth. However, with ongoing dedication to research, collaboration, and responsible stewardship of our water resources, we can build upon past achievements and create a cleaner, healthier world for generations to come.

ACKNOWLEDGMENT:

The implementation and documentation of this project would not be succeeded without the kind support from individuals. First of all, we would like to express our special gratitude to **Prof.R.S.Shelke** who always gives us valuable advice and kind assistance to complete this project. Last but not least, we would like to thank the Faculty of Information Technology, Savitribai Phule Pune University for giving us the great knowledge. Finally, we would like to give our appreciation to our parents who support us since the beginning till the end of this project.

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