
The Need For Implementation Of An Automatic Drainage Cleaning System

Introduction

The underground drainage system is an important component of urban infrastructure. It is considered being city's lifeline. Most management on underground drainage is manual therefore it is not efficient to have clean and working underground system also in such big cities. It is difficult for the government personnel to locate the exact manhole which is facing the. Increase urbanization has caused problem with increased flash flooded after sudden rain. All successful civilization throughout the history focused on developing efficient drainage system. Diverting both waste water away from drinking and rain water towards crops in agriculture use. If the drainage system is not properly managed then pure water gets contaminated with drainage with drainage water and infection and disease may get spread. The drainage gets blocked during rainy season and it will create the problem to routine life like traffic may get jammed environment will become dirty and totality it will upset the public. In many case blocked drains can causes sewage and water to back up and potentially come up onto your property. Therefore, it is essential to develop a system which can handle underground drainage without human intervention. Underground drainage involves sewerage system, gas pipeline network, water pipeline, and manhole. Today drainage system is not HIGH-TECH. so whenever there is blockage it is difficult to figure out the exact location of the blockage. Also early alerts of the blockage are not received. Hence detection and repairing of the blockage become time consuming. Due to such failure of drainage line people face a lot of problem. So we have invented IoT base automated drainage system with blockage clearance. Its main proposes is to detect the location, and the system governing the flow of sewage from the pipe and also use of flow sensor to detect the variation in the flow, get the prior alerts of blockage and locates them using IOT, trace location using GPS and sends SMS through GSM.

What is happening now?

Increased urbanization has caused problems with increased flash flooded after sudden rain. The idea behind smart drainage system is to replicate natural systems that use cost effective Solutions with low environmental impact to drain away dirty waste water before allowing it to back into the environment. This is to counter the conventional drainage system that is often allowed for flooding and pollution of environment. All successful civilizations throughout the history focused on developing efficient drainage system, diverting both waste water away from drinking water and rain water towards crops in agricultural use.

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Why smart drainage system is essentially needed?

Most of the cities adopted the underground drainage system and it is the duty of Municipal Corporation to maintain cleanliness, health and safety of cities. If the drainage system is not properly managed then pure water gets contaminated with drainage water and infectious diseases may get spread. The drainage gets blocked during rainy season and it will create the problems to routine life like traffic may get jammed, environment will become dirty and totally it will upset the public.

In many cases blocked drains can cause sewage and waste water to back up and potentially come up onto your property.

If drainage gets blocked or water overflows, the sensor senses the activity and sends the information via transmitter to the concerned persons. Manhole maintenance by human is very difficult because environment is very poor and it is difficult to go inside of manhole for inspecting the states of manholes all the time.

Immediately it is not possible to confirm if the person intrudes the manhole or an accident happens inside of the manhole. The drainage system is essential for the people who live in urban areas as this system reduces flood effect by carrying water away (a facility to dispose liquid waste).

Improper maintenance of existing drainage system leaving many people suffer.

Problems

Today's drainage system is not high-tech. So whenever there is blockage it is difficult to figure out the exact location of the blockage. Also, early alerts of the blockage are not received. Hence detection and repairing of the blockage become time consuming. It becomes very inconvenient to handle the situation when pipes are blocked completely. Due to such failure of drainage line people face a lot of problems. So this system proposes:

- Detect the location
- The system governing the flow of sewage from the pipes.
- Use of flow sensors to detect the variations in the flow.
- Get the prior alerts of blockages and locate them using IOT. Trace location using GPS and send SMS through GSM.

Literature survey

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R. Sathiyakala 2016, said that the usage of mechanical drainage system cleaner to replace the manual work required for drainage cleaning system. Drainage pipes are very dirty. Sometimes it is harmful for human life while it is need for cleaning drainage system. To overcomes this problem, they implemented a mechanical semi – automated drainage water cleaner and so the water flow efficient because the regular filtration of wastage with help of that project.

Mhael Okpara (2014) reviewed about drainage cleaning to replace manual work to automated system because manually cleaning system it is harmful for human life and cleaning time, is more so to overcome this problem they implemented a design “automatic drainage water pump monitoring and control system using PLC and SCADA”. In this project the use efficient way to control the deposal of wastage regularly treatment of disposal in different way toxic and non-toxic. International Journal of Science Technology Management and Research Today the advanced time has such a variety of advances to make our life modern. Like that cleaning, procedure likewise plays a critical part. For example, our Smart Cleaning System do the residential reason cleaning flawlessly and keep the mosquito era from the sewage, by the way, intestinal sickness, influenza and so forth illnesses stay away from In future the robotization cleaning framework will be lies on each different house sewage cleaning framework.

It was found out that in the absence of some variables like heavy winds, the propeller moved at a rate relative to the velocity of the running water. The cleaner functioned move effectively during the heavier rains which had more volume of running water with garbage and high velocity. The pan functioned effectively. It moved at a rate relative to the velocity of the running water and at the rate of the propeller. The deplete squander water cleaner machine is outlined and produced by utilizing gear changing and shaft coupling standard. It comprises principally DC adapted engine, shafts, squander evacuation plates, clean container, heading, sprocket and chains Construction materials are effortlessly available, creates work (development and maintenance), simple to build. Mechanization is an innovation worried with his utilization of mechanical, electronic and PC based frameworks to work and control generation. This framework is utilized to operate automatic sewage cleaning equipment. This venture might be created with the full use of men, machines, and materials and cash. Additionally we have taken after altogether the investigation of time movement and made our venture temperate and productive with the accessible assets. This framework was Designed, Fabricated effectively and furthermore tried. It works satisfactorily. We trust that this will be done among the most flexible and compatible one even in future.

Journal of the American Water Resources Association (JAWRA) the term flashiness reflects the frequency and rapidity of short-term changes in stream flow, especially during runoff events. Flashiness is an important component of a stream’s hydrologic regime. A variety of land use and land management changes may lead to increased or decreased flashiness, often to the detriment of aquatic life. This paper presents a newly developed flashiness index, which is

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based on mean daily flows. The index is calculated by dividing the path length of flow oscillations for a time interval (i. e. , the sum of the absolute values of day-to-day changes in mean daily flow) by total discharge during that time interval. This index has low inter annual variability, relative to most flow regime indicators, and thus greater power to detect trends. Index values were calculated for 515 Midwestern streams for the 27-year period from 1975 through 2001. Statistically significant increases were present in 22 percent of the streams, primarily in the eastern portion of the study area, while decreases were present in 9 percent, primarily in the western portion. Index values tend to decrease with increasing watershed area and with increasing unit area ground water inputs. Area compensated index values often shift at eco region boundaries. Potential index applications include evaluation of programs to restore more natural flow regimes. The deplete squander water cleaner machine is outlined and produced by utilizing gear changing and shaft coupling standard. It comprise principally DC adapted engine, shafts, squander evacuation plates, clean container, heading, sprocket and chains Construction materials are effortlessly available, creates work (development and maintenance), simple to build.

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Bharat, K. (2002), said that mechanization is an innovation worried with his utilization of mechanical, electronic and pc based framework to work control generation. This frame work utilized to operate automatic sewage cleaning equipment. This venture might be created with the full use of men, machines, material and cash. Additionally we have taken after altogether the investigation of time movement and made our venture temperature and productive with the accessible assets.

Conclusion

By study of many literature reviews we conclude that many specific empirical studies have been carried out and categories such as automatic drainage cleaning system and its automation have been studied to a great depth. We focus more on making the system in the drainage. In the treatment system of drainage Waste water control by the motor, chain drive and lifter, and the collecting to achieve automatic control of sewage waste water treatment. Automation is a technology concerned with the application of mechanical, electronic and computer based

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systems to operate and control production. This technology is applied on our sewage cleaning system. Also we have followed thoroughly the study of time, motion and made our project economical and efficient with the available resources. The system is made more efficient by the use of solar energy and a micro controller.

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