INNOVATIVE AND BEST MANAGEMENT PRACTICE IN TREATMENT OF GENERAL WASTE DISPOSAL IN TRAIN

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Abstract*—Indian railways have 114,500 km of total track over a route of 65000 km and 7500 stations. While travelling by the train everyone expect healthy and hygienic surrounding. While Feel uncomfortable due to the waste on the compartment and the allied foul smell. Creates bad impression on foreign tourist .Sanitation problem cause due to system in which train wasteges dispose human openly on to tracks. So as an Mechanical Engineer it is our duty to solve the problem and give the better solution to it. This module discussed in the paper suggests the solution for the same and thereby creating awareness among the commuters.*

INTRODUCTION

Indian railways represent the pride of an Indian. Indian railways is an Indian state owned enterprise, owned and operated by the government of India through the ministry of railways. Railways have been good medium of transportation for its passengers since 1851 when it was introduced in India (Bombay to thane). During these 150 years, it has approximately touched each and every part of the country.It covers about 1,15,000 km with 7500 stations.As of December 2012, it transported over 25 million passengers daily. Indian railways is known to be Asia largest railway network with modern coaches with water and lavatory facility,technological self sufficiency, long distances sleepers class and a variety of air conditioned and non air conditioned services to suit every pocket of its passengers. Generally most numbers of educational institutions, theaters, marriage halls, railways , bus are situated many villages and all cities. The basic needs of these mentioned places are cleanness dustbin system. After throwing of waste materials , most of the peoples are not even put waste materials in dustbin . Due to this factor, thlaces environment is affected by unpleasant bad smell creation from waste materials . Considering this cleanness factor, we have planned to design a device for cleaning the dustbin automatically using mechanical mechanism. Our motto is mainly focused to reduce the involvement of humans in dustbin cleaning in couches and we can get alternate of automate the garbage cleaning in railways. When the dustbin is got fully filled it will automatically clean itself at the next available station , the device will clean the garbage and it will highly compress the size of garbage in terms of volume. It is not only focused on automate garbage cleaning and also focuses on reduce the expense to railway and now railway spending cores and core to keep our ecosystem more clean.

LITERATURE REVIEW

S.Lokeshwar, J.Micheal raj, S.Premkumar[1] “Automatic disposal dustbin in railway coaches” in International Journal Of Engineering and Advanced Technology(IJEAT) has discussed about to reduce the involvement of humans in dustbin cleaning in coaches and we can get alternate of automate the galeaning in railways . This project not only focused on automate garbage cleaning and also focuses on reduce the expense to railway and now railway spending cores and core to keep our ecosystem more clean.

Steven Cohen, Hayley Martinez and Alix Schroder[2] December 2015 International Journal Of Engineering and Advanced Technology has discussed about the “Waste Management Practice In Newyork City, Hong Kong And Beijing ” Solid waste management is a challenge for large railway areas .Removing the garbages from compartments, tracks are a major logistical and operational task. Solid waste generation rates are rising fast, particularly in cities experiencing increasing population rates and higher economic activity.

As per, Manju Minhasl, Aparajita Sexena[3]-November 2014, International Journal Of Engineering and Advanced Technology discussed about The “Solid Waste Management At New Delhi Railway Station”.Solid Waste Management is a part of public health and sanitation, and according to the Indian Constitution, fallswithin the purview of the State list. Since this activity is non-exclusive, non-rivaled and essential, theresponsibility for providing the service lies within the public domain.The activity being of local nature is
entrusted to Urban Local bodies .The Urban Local body undertakes the task of solidwaste management servicewith its own staff, equipment and funds. In a few cases, part of

the said work is contracted out to private enterprises or NGOs.

NEED FOR AUTOMATION

Over the past several years, tools that help programmers quickly create applications with graphical user interfaces have dramatically improved programmer productivity.

This has increased the pressure on testers, who are often perceived as bottlenecks to the delivery of software products. Testers are being asked to test more and more code in less and less time. They need to dramatically improve their own productivity. Test automation is one way to do this.

TESTING OF AUTOMATION

Test automation implementations are expected to achieve some or all of the following objectives;

- Speed up testing to accelerate releases
- Allow testing to happen more frequently
- Reduce costs of testing by reducing manual labour
- Improve test coverage
- Ensure consistency
- Improve the reliability of testing
- Maintenance of the regression suite becomes unmanageable with the
- Define the testing process and reduce dependence on the few who know it
- Make testing more interesting; reduce the mundane repetitive execution of tests.
- This is the promise of test automation.

Allow testing to be done by staff with less skill pressure on testers, who are often perceived as bottlenecks to the delivery of software products. Testers are being asked to test more and more code in less and less time. They need to dramatically improve their own productivity. Test automation is one way to do this.

THE REALITY

Unfortunately, more often than not, automation implementations fail due for a number of reasons, the most common being

- Effective test automation requires developer skills, already a rare commodity,
- Building a regression test suite requires significantly more time to develop than purported by the tool vendors,
- A reasonable maturity and competence in manual testing is lacking,
- The result of these issues is a significant waste of money and resources number of changes implemented in each release,
- The application must be available and stable before script development/ maintenance can take place,
- ROI on the tools and labor seldom, if ever, occurs in the short term,
- Test Automation Engineers are seldom included as an integral part of the development/test team,
- The Test Automation Engineers automate the tests previously executed for each release, adding to the regression test pack. This results in a large number of (short) segmented automated tests.
- A number of automated testing “frameworks” exist but require an army of consultants to maintain, Metrics are difficult to determine as the test automation scripts do not necessarily report into the Test Management tool effectively.

WASTAGES

Waste and wastes are unwanted or unusable materials .Waste is any substances which is discarded after primary use, or it is worthless, defective and of no use.

DUSTBIN FOR BIO DEGRADABLE AND NON BIO DEGRADABLE

FIG: 1 EXISTING DISPOSAL DUSTBIN

Biodegradable waste includes any organic matter in waste which can be broken down into carbondioxide, water, methane or simple organic molecules by micro-organisms and other living things using composting, aerobic digestion, anaerobic digestion or similar processes. Biodegradable waste can be commonly found in municipal solid waste (sometimes called biodegradable municipal waste, or BMW) as green waste, food waste, paper waste, and biodegradable plastics. Other biodegradable wastes include human waste, manure, sewage, sewage sludge and slaughterhouse waste. Non-biodegradable waste is a type of waste that cannot be broken down into its base compounds by micro-organism, air. Moisture or soil in a reasonable amount of time. Non-biodegradable waste is an environmental concern, as it threatens to overwhelem landfill and create disposal problems.Non-biodegradable products include plastic products, metal products, construction waste and electronics. Non-biodegradable products are items that cannot decay or be broken down by living organism. For example, water bottles, tin cans, tires and computers are all items that cannot decay in a landfill

Fig 2 EXISTING DUSTBIN DIAGRAM

PROPOSED DIAGRAM

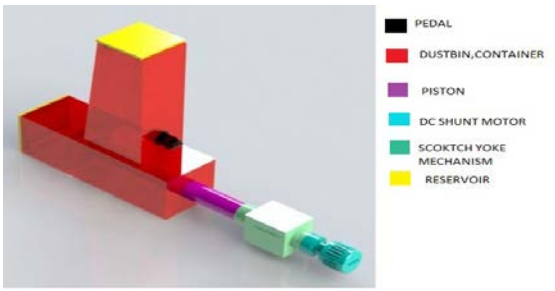

Fig 3 PROPOSED DIAGRAM FOR GENERAL WASTE DISPOSAL SYSTEM

WORKING

Our motto is Automatic Dustbin cleaning system using mechanical power. This project is designed by the more components. These components are garbage dustbin , container, piston, DC-shunt motor. When the passenger press the pedal top and bottom reservoirs are opening at a same time by using rocker arm mechanism and the wastages are directly gone the container.In the container will situated at bottom of the compartment.When the piston is continuously moves forward and backward motion by using of skotch yoke mechanism in power of dc shunt motor.Thus the wastages are compressed highly to form a some volumentric shape . So garbage got reduced it terms of size. So to compress the garbage more and more and there is no need clean dustbin frequently.

MECHANISM USED

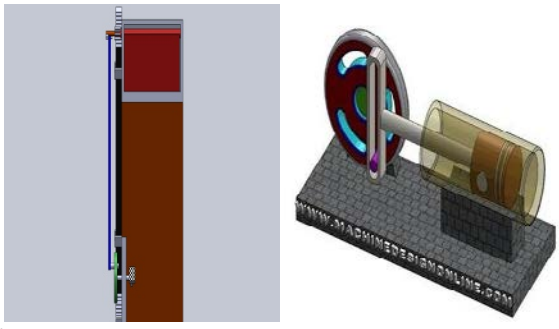

Fig 4 ROCKER ARM MECHANIS AND SKOTCH YOKE MECHANISM

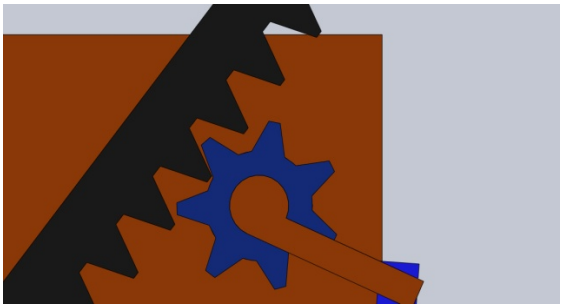

Fig 5 GEAR AND PINION MECHANISM

CONCLUSION

- Automatic disposal dustbin in Indian railways had become a need of time and an important aspect for Indian railways complete success.
- Responsible authorities are also putting efforts in this direction by carrying out outfield trials and putting notice board in wash basin such as requesting passenger not to throw the wastages when train is stationary at platform.
- According to the existing dustbin of railway coach is very low in storage capacity.
- So after filling of the dustbin, the wastages are spilled in the coach floor.
- Thus the garbage wastes causes unpleasant smell and some infectious diseases.
- A modification is done in the project to overcome the above said troubles is compeletly reduced. This system is helping to keep area clean and maintenance free

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