



International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 4, Issue 9, September 2015

Automating Instrument in Treating and Clearing Waste in Public Means

B.Kalaiselvi¹, Dr. S. Senthil Kumar²

Assistant Professor, Dept. of Electronics and Instrumentation Engineering, Bharath University, Chennai, Tamil Nadu,
India¹

Assistant Professor, Dept. of Electronics and Instrumentation Engineering, Bharath University, Chennai, Tamil Nadu,
India²

ABSTRACT: This paper revolves around the concept of Automation used in the domain of Public Cleanliness and Hygiene. Careless trashing of garbage onto the roads is a common scenario to be found in developing countries. Public cleaners do amassing the waste items manually, which puts their lives in mishap. Each day for them would mean an assiduous task to collect the trash, segregate them, transport it and deposit the remains in appropriate plants for either recycling or decomposing. This problem is brought to a full stop by designing a contraption. A bot is programmed to pick the waste, intake the refuse into a specialized compartment, segregate them internally and to deposit it into separate bins meant for reusing and recycling. The device is capable of establishing a link of information exchange with the other bots at work to avoid the recurrence of job already completed. The matter is taken up by the local bodies, municipal corporations and the Government but suffers in proper uniform implementation. All the problems have culminated to a drastic danger, which we find ourselves in. Keeping this in mind, we as students, thought to bring in robotics. Contraptions would be designed, deploying them on roads collecting the litter off public domains. It is to be programmed against a regular timeframe where it would work for a specified interval in a particular area. We have planned to rope in the research and development consortium for logistics support and auditing. The proposed model will function on the client-server model relying on message passing system. A cause that will promise good health, clean environment and pollution free society.

KEYWORDS: Public Cleanliness, Bot, CCTV Camera, Client-Server Communication, Self-Awareness

I. INTRODUCTION

Garbage accumulation is so high that it becomes a crisis if left uncollected. If the garbage collector does not turn up, a household would probably direct their maidservant to pick the bags of trash, as it would be too much for the bags to be kept inside the home. The servant would probably dump the trash at the end of the lane seeing that others would follow suit. The place would gradually turn into a garbage dumpyard, which would turn into a haven for health diseases. The society would turn to the welfare groups who would react by clearing the garbage yard and dumping it in a landfill. Garbage can be efficiently used in land filling in sub- urban areas. This process will bring up some of the land that are not in use, for some commercial purposes. Even we see in day to day life that garbage are burnt here and there, which produced immense of pollution. This pollution further leads to environmental issues. The acts of the public do not comply with the environmental friendly measure. Some municipalities encourage the installation of disposers to increase biogas production. The disposal unit consists of an electric motor, which spins a circular turntable. The turntable is surrounded by a shredder ring, which has sharp slots. The waste sits on the table and through the centrifugal force is forced to its perimeter and through the shredder ring. Presently, the disposal mechanism begins with internal storage followed by truck-based collection. The food scraps if left uncollected decomposes and generates methane gas, which is a potent greenhouse gas. This gas be used up as a fossil fuel for various purposes. It can even act as the supplementary fuel for the exhaustive fossil fuel. Some wastewater plants have adopted models for effective processing of organic solids into bio-solids. Nevertheless, these measures exist at a small scale. To keep our environment clean, we must first keep our living surroundings clean. The issue of improper decomposition is not a new one, rather various measures has already been taken up yet

International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 4, Issue 9, September 2015

there is not perfect solution to it. But now the time has come to take up some serious steps so that we can have a garbage clean environment.[1-3]



Fig.1 Showing improper disposal of garbage

A. Architecture of Working Model:

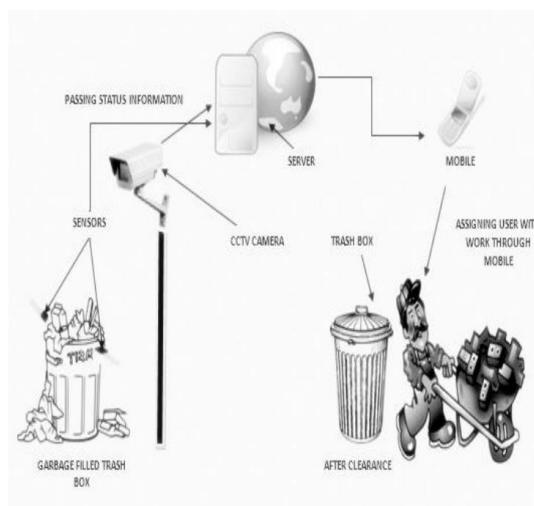


Fig.2. Architecture of working model

In the above figure we can see how inefficiently the garbage has been thrown here and there, which put a great concern for public. Recently it has been noticed that around 20 millions of tones of garbage are produced all over the globe. So in order to dispose them there should be some mechanism to help overcome this situation. Various organizations have also come up with various new ideas of proper disposal of garbage but none of them guarantees health issue. Rather here we can ensure a proper method of collecting and disposing them.[4-7]

A. Flaws in Existing System:

Improper disposal of the garbage. There's no notification of the filled in garbage- dumps. Irresponsibility of throwing garbage outside the dumps. No quick action regarding disposal of garbage. Health Issues for the workers and



International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 4, Issue 9, September 2015

surrounding people. Environmental degradation.

B. Worker profile creation:

Database of all the workers working under the sanitation department is stored in the server. Each worker's profile is updated on a regular basis. A space would be allocated for registering a complaint if the worker fails to do his job of clearing the wastes collected by the robot, from its metal cabinet.[8-10]

C. Waste Detection:

The bots would be inbuilt with sensors on the Arduino board, which would detect if the metallic chambers are filled to the brim. The message would directly pass to the server and alert the worker through his profile. The alert signal would be sent to his handset every specific interval if the task is left unattended. If the assigned worker is unavailable at that moment or hesitates to go about with his commitment, the task of clearing the wastes would immediately be assigned to a new worker whose work slot is empty. The idea of message passing is used here.[11]

D. Status Registration in Server:

As soon as the work of emptying the metal can is done the task of completion would be recorded in a separate register. On the same line, complaint would be registered against the personnel who fail to work on time. This system is encouraged to enforce stricter laws on public cleanliness.[12][14]

E. Generating Status to End user

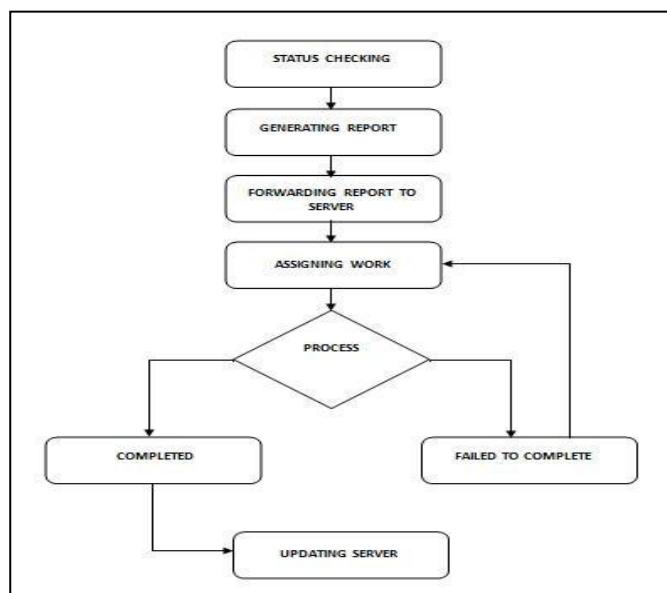


Fig.3.Proposed System

Advantage of the Proposed system:

- Effective and efficient Functioning.
- No delay in Operation.



International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 4, Issue 9, September 2015

- Cleaner Environs as the project is uniformly implemented.
- Comparatively better health issues.
- In-time and proper disposal.

IV. FUTURE WORKS

To make the system of operation completely automated with no human intervention would be the future goal. A pot would be designed to pick the litter and self-segregate it. It would then be programmed to reach out the departments concerned such as recycling units, metal scrap collection centres etc. Also serious action can be taken for the persons those who through the garbage outside the dump[13].

V. CONCLUSION

Finally we can say that, a garbage-free environment can only be established if we put ourselves into this concern. For hundreds of years we have seen that it is our fault that we pollute our surrounding by burning up the garbage rather than disposing them properly. This proposed system will definitely help to over-come this striking issue. We can also guarantee a safe and a healthy environment, which will finally have a bright and successful future in coming years.

REFERENCES

- [1] Investigations on potentials of energy from sewage gas and their use as stand alone system – 2012 Verma, A.; Singh, R.; Yadav, R.S.; Kumar, N.; Srivastava, P.
- [2] Lydia Caroline M., Vasudevan S., "Growth and characterization of L-phenylalanine nitric acid, a new organic nonlinear optical material", Materials Letters, ISSN : 0167-577X, 63(1) (2009) pp. 41-44.
- [3] Langeswaran K., Gowthamkumar S., Vijayaprakash S., Revathy R., Balasubramanian M.P., "Influence of limonin on Wnt signalling molecule in HepG2 cell lines", Journal of Natural Science, Biology and Medicine, ISSN : 0976-9668, 4(1) (2013) PP. 126-133.
- [4] Development of robotic sewerage blockage detector controlled by embedded systems – 2012 Shrivastava, A.K.; Verma, A.; Singh, S.P.
- [5] Evaluation on the Performance of Urban Domestic Sewage Treatment Plants in China - 2011 Dongmei Han; Guojun Song
- [6] Jayalakshmi T., Krishnamoorthy P., Ramesh Kumar G., Sivamani P., "Optimization of culture conditions for 'keratinase production in Streptomyces sp. JRS19 for chick feather wastes degradation", Journal of Chemical and Pharmaceutical Research, ISSN : 0975 – 7384, 3(4) (2011) PP.498-503.
- [7] Jebaraj S., Iniyan S., "Renewable energy programmes in India", International Journal of Global Energy Issues, `ISSN : 0954-7118, 26(4Mar) (2006) PP.232-257.
- [8] Soft Measurement Modeling Based on Improved Simulated Annealing Neural Network for Sewage Treatment – 2009 Jingwen Tian; Meijuan Gao
- [9] Innovation of intensive operation mode for sewage treatment in northwest area of Guangdong Province – 2010 Yu Feng-zhu
- [10] ES-MPICH2: A Message Passing Interface with enhanced security – 2010 Xiaojun Ruan; Qing Yang; Alghamdi, M.I.; Shu Yin; Zhiyang Ding; Jiong Xie; Lewis, J.; Xiao Qin
- [11] Gopalakrishnan K., Prem Jeya Kumar M., Sundeep Aanand J., Udayakumar R., "Thermal properties of doped 'azopolyester and its application", Indian Journal of Science and Technology, ISSN : 0974-6846, 6(S6) (2013) PP. 4722-4725.
- [12] Compressive sensing under matrix uncertainties: An Approximate Message Passing approach Parker, J.T.; Cevher, V.; Schniter, P.
- [13] Zero-waste olympic games - 2012 Douglas, L.
- [14] Study on optimum transport system of environmental resources-system dynamics approach – 1998 Takehara, A.; Hiratsuka, A.; Ogawa, K.
- [15] D.Kalaivani, Mrs.M.Indirani & Dr.A.Mukunthan, A Theoretical Study of Primary Nucleation Kinetics of L-Histidine Bromide: Semi Organic Optical Single Crystal, International Journal of Innovative Research in Science, Engineering and Technology, ISSN: 2319-8753,pp 4192-4197, Vol. 2, Issue 9, September 2013
- [16] D.Prakash and Dr. A.Mukunthan, A Theoretical Study of Internal Pressure And Free Volume for Single Molecule of a Sample Liquid, International Journal of Innovative Research in Science, Engineering and Technology, ISSN: 2319-8753,pp 7252-7257, Vol. 2, Issue 12, December 2013
- [17] Dr. A. Mukunthan & Ms.S.Sudha, FTIR Spectroscopic Features of Blood Serum of Diseased and Healthy Subjects (Animals), International Journal of Innovative Research in Science, Engineering and Technology, ISSN: 2319-8753, pp 2035-2040 Vol. 2, Issue 6, June 2013
- [18] Dr. A.Mukunthan, A Survey of Applications of Laser in Dermatology – Medical Physics, International Journal of Innovative Research in Science, Engineering and Technology, ISSN: 2319-8753 .pp 33-36, Vol. 1, Issue 1, Nov 2012
- [19] Dr. M. Ganeshan, Mergers and Acquisitions, International Journal of Innovative Research in Science, Engineering and Technology, ISSN: 2319-8753,pp 9081-9085, Vol. 3, Issue 2, February 2014
- [20] Dr.G.Brindha, A Study on Latest Management Governance Techniques in Indian Companies, International Journal of Innovative Research in Science, Engineering and Technology, ISSN: 2319-8753,pp 284-292, Vol. 2, Issue 1, January 2013