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DESIGN OF PORTABLE SANITARY NAPKIN VENDING MACHINE

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ABSTRACT

This proposed system of educate and create awareness of use of Sanitary Napkins and provide easy access to Sanitary Napkins by installation Simple Vending Machines with replenishment program in Rural Schools and Colleges so that Girls/Women get habituated to use this Sanitary Napkins for their better health care. Secondly, to solve the problem of sanitary napkin disposal by installing incinerators which shall reduce spread of infection due to unhygienic disposal of sanitary napkins, reduce environmental pollution due to non- biodegradable sanitary napkins and reduce clogging of public drainage system due to spongy nature of napkins.

KEYWORDS:

Portable, IR sensor, Vending Machine, Embedded System

INTRODUCTION

Human activities create waste, and it is the way these wastes are handled, stored, collected and disposed of, which can pose risks to the environment and to public health. The management of solid waste is an important concern in developing and emergency conditions, e.g. those of a refugee camp, where solid waste management infrastructure and services are far from achieving basic standards in terms of hygiene, efficient collection and disposal. These situations are characterized by: difficulties in evaluating and choosing the most appropriate solution with respect to the specific operating conditions, inadequate service coverage, operational inefficiencies of services, limited utilization of recycling activities, inadequate management of non industrial hazardous waste, and inadequate landfill disposal. Moreover, developing and emergency conditions are characterized by difficulties in evaluating and choosing the most appropriate solution with respect to the specific operating conditions.

This paper analyzes several problems related with solid waste disposal and it describes an appropriate solution for Saharawi refugee's camps, South Algeria. Sanitary napkins typically used by women .Particularly an issue where solid waste collection and disposal systems do not operate effectively. Long- lasting, comfortable, stain-free and affordable is the thoughts that come to every woman's mind when she picks up a disposable sanitary napkin. Every month, 353 million women and adolescent girls across India need to dispose of their menstrual waste in their houses so they disposed it away.

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PROBLEM STATEMENT

As per study in India only 12% of women use Sanitary Napkins and percentage is much lower in Rural Areas. It is observed that 20 percent of girls did not use toilet in school during menstruation for fear of staining it, and more than two out of five girls had no idea about menstruation when they started with their periods. Of those who had some idea, only 16 percent received any information in school. There is a potential loss on economic and social front to India as a result of girls dropping out of school due to menstrual health issues and thus getting into early marriages and early pregnancies. More girls in schools means universal primary education and increased gender parity while contributing to eradication of poverty. Educated mothers also contribute to improved maternal health and reduction in child mortality. Hence, educating and creating awareness for use of Sanitary Napkins and as well provide easy access to Sanitary Napkins using Vending Machine is of prime need.

Fig.1. Block Diagram

INFRARED SENSOR

An infrared sensor is an electronic instrument that is used to sense certain characteristics of its surroundings. It does this by either emitting or detecting infrared radiation. Infrared sensors are also capable of measuring the heat being emitted by an object and detecting motion.

Fig.2.Infrared sensor

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GSM MODEM SIM 800A

SIM800 is a quad-band GSM/GPRS module designed for the global market. It works on frequencies GSM 850MHz, EGSM 900MHz, DCS 1800MHz and PCS 1900MHz.

Fig.3.GSM Module

SANITARY NAPKIN DISPOSAL MACHINE INCINERATOR

With Sanitary Napkins, we also need to give solution to dispose these sanitary napkins and avoid current ways of disposal like sanitary napkins are mixed with regular waste and it's difficult to segregate them and dispose them off. This exposes these viral borne wastes to the environment, animals and public at large causing diseases like Hepatitis B and C. It exposes waste pickers to disease-causing microorganisms E coli, Salmonella, Staphylococcus, HIV and pathogens that cause hepatitis and tetanus. Incinerating these napkins is the only way of getting rid of these problems. Hence, Installation of Incinerator is proposed. Sanitary Napkin Vending Machine is a Self-Service Vending Machine used for dispensing Sanitary Napkins against acceptance of Coins. Proposed Vending Machine has loading capacity of 24 napkins with display for showing Napkin Stock availability. Its mechanical coin acceptor, single value coin acceptor Rs 5 Coin and no need for electricity. A safe, hygienic, scientific & quick method of disposal of sanitary napkins is to incinerate them „at relatively low temperature to harmless sterile ash. It helps in instant disposal of used napkins in a very scientific and hygienic way without generating harmful emissions.

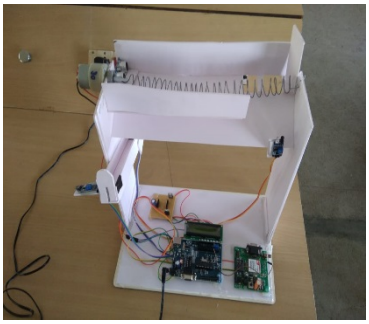

Fig.4. Hardware Components

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CONCLUSION

There is a potential loss on economic and social front to India as a result of girls dropping out of school due to menstrual health issues and thus getting into early marriages and early pregnancies. More girls in schools means universal primary education and increased gender parity while contributing to eradication of poverty. Educated mothers also contribute to improved maternal health and reduction in child mortality. Hence, educating and creating awareness for use of Sanitary Napkins and as well provide easy access to Sanitary Napkins using Vending Machine is of prime need.

REFERENCES

[1] World Health Organization, "Programming for adolescent health and development," WHO Technical Report Series No. 886, vol. 2, World Health Organization, 1996. View at Google Scholar.

[2] S. B. Thakre, S. S. Thakre, M. Reddy, N. Rathi, K. Pathak, and S. Ughade, "Menstrual hygiene: knowledge and practice among adolescent school girls of Saoner, Nagpur District," Journal of Clinical and Diagnostic Research, vol. 5, no. 5, pp. 1027–1033, 2011.

[3] A. Bagga and S. Kulkarni, "Age at menarche and secular trend in Maharashtrian (Indian) girls," Acta Biologica Szegediensis, vol. 44, no. 1-4, pp. 53–57, 2000.

[4] A. Diaz, M. R. Laufer, and L. L. Breech, "Menstruation in girls and adolescents: Using the menstrual cycle as a vital sign," Pediatrics, vol. 118, no. 5, pp. 2245–2250, 2006.

[5] S. Nagar and K. R. Aimol, "Knowledge of Adolescent Girls Regarding Menstruation in Tribal Areas of Meghalaya," Studies of Tribes and Tribals, vol. 8, no. 1, pp. 27–30, 2017.

[6] A. Dasgupta and M. Sarkar, "Menstrual hygiene: how hygienic is the adolescent girl?" Indian Journal of Community Medicine, vol. 33, no. 2, pp. 77–80, 2008.

[7] I. Swenson and B. Havens, "Menarche and Menstruation: A Review of the Literature," Journal of Community Health Nursing, vol. 4, no. 4, pp. 199–210, 1987.

[8] D. Sapkota, D. Sharma, H. P. Pokharel, S. S. Budhathoki, and V. K. Khanal, "Knowledge and practices regarding menstruation among school going adolescents of rural Nepal," Journal of Kathmandu Medical College, vol. 2, No. 3, no. 5, pp. 117–121, 2014.

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International Journal of Engineering Technology Research & Management

[9] A. Khanna, R. S. Goyal, and R. Bhawsar, "Menstrual practices and reproductive problems: a study of adolescent girls in Rajasthan," Journal of Health Management, vol. 7, no. 1, pp. 91–107, 2005. View at Publisher.

[10] V.Dhinesh, T.Premkumar, S.Saravanan and G.Vijayakumar," Online Grid Integrated Photovoltaic System with New Level Inverter System" International Research Journal of Engineering and Technology, Vol.5, Issue 12, pp.1544-1547, 2018.

[11] J.Vinoth, T.Muthukumar, M.Murugagndam and S.Saravanan," Efficiency Improvement of Partially Shaded PV System, International Journal of Innovative Research in Science, Engineering and Technology, Vol.4, Special issue 6, pp.1502-1510, 2015.

[12] M.B.Malayandi, Dr.S.Saravanan, Dr. M.Muruganandam, "A Single Phase Bridgeless Boost Converter for Power Factor Correction on Three State Switching Cells", International Journal of Innovative Research in Science, Engineering and Technology, Vol. 4, Special Issue 6, pp. 1560-1566, May 2015.

[13] A.Sasipriya, T.Malathi, and S.Saravanan, "Analysis of Peak to Average Power Ratio Reduction Techniques in SFBC OFDM System" IOSR Journal of Electronics and Communication Engineering (IOSR-JECE), Vol. 7, No.5, 2013.

[14] P.Ranjitha, V.Dhinesh, M.Muruganandam, S.Saravanan, "Implementation of Soft Switching with Cascaded Transformers to drive the PMDC Motor", International Journal of Innovative Research in Science, Engineering and Technology, Vol. 4, Special Issue 6, pp. 1411-1418, May 2015.

[15] C.Sowmiya, N.Mohanandhini, S.Saravanan and M.Ranjitha,"Inverter Power Control Based On DC-Link Voltage Regulation for IPMSM Drives using ANN" International Research Journal of Engineering and Technology (IRJET), Vol.5, Issue 11, pp.1442-1448, 2018.

[16] N.Yuvaraj, B.Deepan, M.Muruganandam, S.Saravanan, "STATCOM Based of Adaptive Control Technique to Enhance Voltage Stability on Power Grid", International Journal of Innovative Research in Science, Engineering and Technology, Vol. 4, Special Issue 6, pp. 1454-1461, May 2015.

[17] P.Manikandan, S.Karthick, S.Saravanan and T.Divya," Role of Solar Powered Automatic Traffic Light Controller for Energy Conservation" International Research Journal of Engineering and Technology (IRJET), Vol.5, Issue 12, pp.989-992, 2018.

[18] R.Satheesh Kumar, D. Kanimozhi, S. Saravanan, "An Efficient Control Scheme for Wind Farm Using Back to Back Converter," International Journal of Engineering Research & Technology (IJERT), Vol. 2, No.9, pp.3282-3289, 2013.

[19] K.Prakashraj, G.Vijayakumar, S.Saravanan and S.Saranraj, "IoT Based Energy Monitoring and Management System for Smart Home Using Renewable Energy Resources," International Research Journal of Engineering and Technology, Vol.7, Issue 2, pp.1790-1797, 2020.

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International Journal of Engineering Technology Research & Management

[20] J Mohammed siddi, A. Senthil kumar, S.Saravanan, M. Swathisriranjani, "Hybrid Renewable Energy Sources for Power Quality Improvement with Intelligent Controller," International Research Journal of Engineering and Technology, Vol.7, Issue 2, pp.1782-1789, 2020.

[21] S. Raveendar, P.M. Manikandan, S. Saravanan, V. Dhinesh, M. Swathisriranjani, "Flyback Converter Based BLDC Motor Drives for Power Device Applications," International Research Journal of Engineering and Technology, Vol.7, Issue 2, pp.1632-1637, 2020.

[22] K. Manikanth, P. Manikandan, V. Dhinesh, Dr. N. Mohananthini, Dr. S. Saravanan, "Optimal Scheduling of Solar Wind Bio-Mass Systems and Evaluating the Demand Response Impacts on Effective Load Carrying Capability," International Research Journal of Engineering and Technology, Vol.7, Issue 2, pp.1632-1637, 2020.

[23] T.R. Vignesh, M.Swathisriranjani, R.Sundar, S.Saravanan, T.Thenmozhi," Controller for Charging Electric Vehicles Using Solar Energy", Journal of Engineering Research and Application, vol.10, Issue.01, pp.49-53, 2020.

[24] V.Dhinesh, Dr.G.Vijayakumar, Dr.S.Saravanan," A Photovoltaic Modeling module with different Converters for Grid Operations", International Journal of Innovative Research in Technology, vol.6, Issue 8, pp.89-95, 2020.

[25] V. Dhinesh, R. Raja, S. Karthick, Dr. S. Saravanan," A Dual Stage Flyback Converter using VC Method", International Research Journal of Engineering and Technology, Vol.7, Issue 1, pp.1057-1062, 2020.

[26] G. Poovarasan, S. Susikumar, S. Naveen, N. Mohananthini, S. Saravanan," Study of Poultry Fodder Passing Through Trolley in Feeder Box," International Journal of Engineering Technology Research & Management, vol.4, Issue.1, pp.76-83, 2020.

[27] C. Sowmya, N. Mohananthini, S. Saravanan, and A. Senthil kumar," Using artificial intelligence inverter power control which is based on DC link voltage regulation for IPMSM drives with electrolytic capacitor," AIP Conference Proceedings 2207, 050001 (2020); https://doi.org/10.1063/5.0000390, Published Online: 28 February 2020.

[28] M.Revathi, S.Saravanan, R.Raja, P.Manikandan," A Multiport System for A Battery Storage System Based on Modified Converter with MANFIS Algorithm," International Journal of Engineering Technology Research & Management, vol.4, issue 2, pp.217-222, 2020.

[29] Dr.S.Saravanan, S.Karthick, K.Rajeshkumar,S.Sriramachandran, P.Surjeethkumar," Fishermen Border Alert System," International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, Vol.9, Issue, 03, pp.236-241, 2020.

[30] A.Yuvaraj, S.Vijay, M.Saran, V.Dhinesh, S.Saravanan," Agriculture Fire Monitoring Robot Using IOT," International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, Vol.9, Issue, 03, pp.257-262, 2020.

[31] A.Ananthan, A.M.Dhanesh, J.Gowtham, R.Dhinesh, G.Jeevitha, Dr.S.Saravanan," IoT Based Clean Water Supply", International Journal of Engineering Technology Research & Management, Vol.4, Issue.3, pp.154-162, 2020.

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[32] S.Karthikeyan, A.Krishnaraj, P.Magendran, T.Divya, Dr.S.Saravanan," The Dairy Data Acquisition System", International Journal of Engineering Technology Research & Management, Vol.4, Issue.3, pp.163-169, 2020.

[33] A.Arulkumar, S.Balaji, M.Balakrishnan, G.Dineshkumar, S.Saravanan," Design and Implementation of Low Cost Automatic Wall Painting Machine", International Journal of Engineering Technology Research & Management, Vol.4, Issue.3, pp.170-176, 2020.

[34] N.Harish, R.Jayakumar, P.Kalaiyarasan, G.Vijayakumar, S.Saravanan," IoT Based Smart Home Energy Meter", International Journal of Engineering Technology Research & Management, Vol.4, Issue.3, pp.177-183, 2020.

[35] M.Amaran, S.Mannar Mannan, M.Madhu, Dr.R.Sagayaraj, Dr.S.Saravanan," Design and Implementation of Low Cost Solar Based Meat Cutting Machine", International Journal of Engineering Technology Research & Management, Vol.4, Issue.3, pp.184-190, 2020.

[36] R.Anbarsan, A.Arsathparvez, K.S.Arunachalam, M.Swathisriranjani, Dr.S.Saravanan," Automatic Class Room Light Controlling Using Arduino", International Journal of Engineering Technology Research & Management, Vol.4, Issue.3, pp.192-201, 2020.

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