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Automatic Fire Gun Robo System Used for Forest Protection

Mathai Thomas[1], M. Thirukumaran[2], V. Ramkumar[3]

[1-3]Department of Mechanical and Automation Engineering, PSN College of Engineering and Technology Melathediyoor, Tirunelveli, TN, India

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Abstract - *The design and fabrication of automatic fire gun ROBO system used for forest protection is a new idea in the field of defense sector. The main aim of this project is protection of animal from hurting by introducing a machine, which works fully in automated. This equipment designing is only focusing on safety of the animals and human. This implementation is mainly focusing on reserving forest safety on both animals and human. The PIR motion sensor and other guided sensors will align automatically to send input signals to the arduino board. Arduino will detect the input as per the feedback and give concatenate response according to the input signal. Servo motor which is attached to compressed cylindrical vessel will be dispatched to the area of feed. The purpose of this project is to provide some project that can monitor the machine using the new technology. To develop a prototype of the smart machine monitoring system, when the trash inside the machine is full it will automatically detects by the sensor system. To develop a system that can send information from one place to another place without any limitation. To integrate the project of smart machine that uses the communication system for sending information data and it also can provide the user-friendly system. The main scenario of smart machine is to save forest. Sensors like capacitive based moisture sensor; inductive based metal sensor, methane sensor and odor sensor are used to achieve this goal.*

Key Words: Fire gun robo, forest, protection, smart machine

1. INTRODUCTION

Since smart cities are becoming center of attraction for the advancement of developing countries and without the removal or solution to the garbage problem these cities will be not that attractive. Therefore, large number of projects and research is going on in the area of smart machine for the special areas and to implement such projects typically use microcontroller based real time bin monitoring system, RFID technology, GPS, GSM, RF module etc.

Yusuf et al. [2], presented an Arduino Uno micro controller based smart machine monitoring system to ascertain the level of animal size in real-time and before they attack the system sense out and alert through SMS municipality for the bin to be emptied an garbage to be collected immediately. Ultrasonic sensor is used to estimate the level while the GSM module is used for sending SMS and Arduino UNO is used to control the system operation. Isaac and Akshai [3], proposed a system called SVASTHA (a Sanskrit word, meaning —be healthy and hygienic), to effectively control. This system is based on RFID and GPS in which data is gathered using the RFID reader via Bluetooth and this data is stored on the central server.

The main objective of smart machine is to save forest .sensors like capacitive based moisture sensor; inductive based metal sensor, methane sensor and odor sensor are used to achieve this goal.

2. EXPERIMENTAL SETUP AND WORKING

- A cylindrical gas gun is initially filled will gas content (e.g.; petrol) .this cylindrical gas gun consists of two terminals (negative and positive terminals) and a fuse filament with one end is permanently fixed to positive terminal and the other end to the servo motor.
- 32 ah battery is used as power supply and capacitor is used to store the power.
- Ultrasonic sensors are used to detect presence of animal. PID sensor will send the output to the arduino und.
- Arduino board will read the input and give out the output to the servo motor.
- The servo motor will work according to input signals sent from the Arduino, hence the servo motor starts, then the filament end attached to the servo motor will start to move up and down movement hence that in turn to meet both terminals which results a spark. This spark is used to burn the gas inside the cylindrical gas gun.
- Chemical equation: CaC2(S) +2H2O (g) = Ca (OH) 2(s)
- Due to high pressure the bullet will pushed through the small opening.

3. SUGGESTED SYSTEM

Almost every findings are from an accident, the conscious of those events made the man to thinking a solution which in turn results a new findings .This project is made for the dignity of those persons who were scarified during the operation while saving the life of an animal .The designed equipment is functioning automatically by the help program written in it. This can be placed in the fields of human life protection in the forest rescue operations. Less capital is required to build this equipment. In this proposed system there are four machines and are denoted by four location East, West, North and South, these dustbins are equipped with low cost devices. This design signifies the technique through which the status of the animals in each forest can be checked by the admin as well as by the officers assigned to each area at regular intervals which will help in preventing the hunting of animals inside the forest.

The Wi-Fi module ESP8266 will act as an interface between the hardware and the software whereas the ultrasonic sensors will sense the height of the animal in front of machine. In addition to this the East machine will be have the feature of opening it's led with an informative message when it detects any motion and to lure people it will give an incentive by polishing shoe with help of PIR sensor, APR module and IR sensor respectively.

3.1 Generation of project

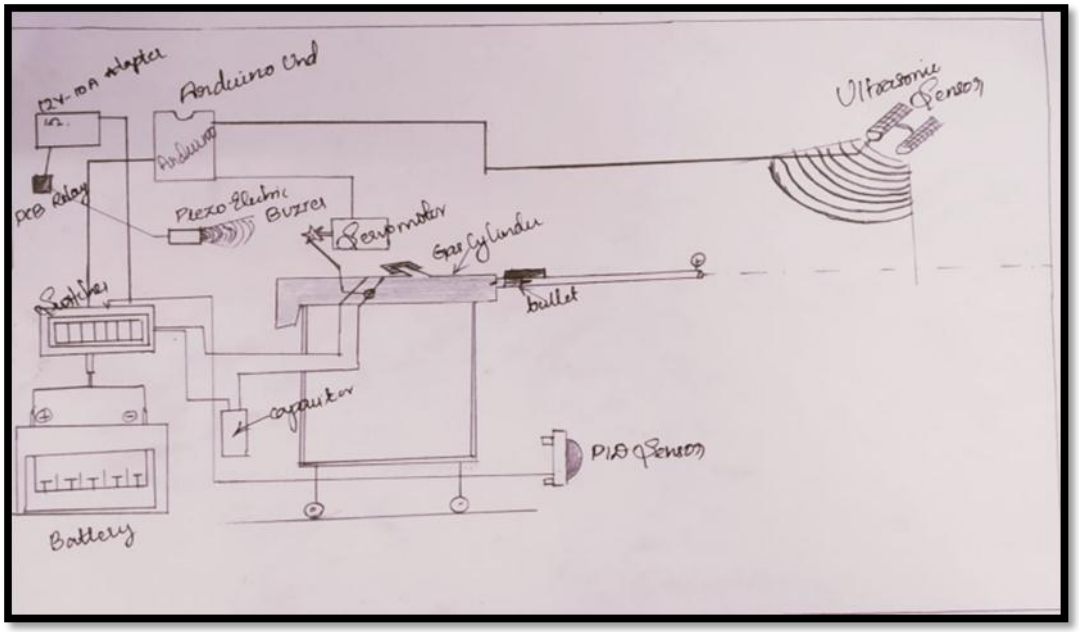
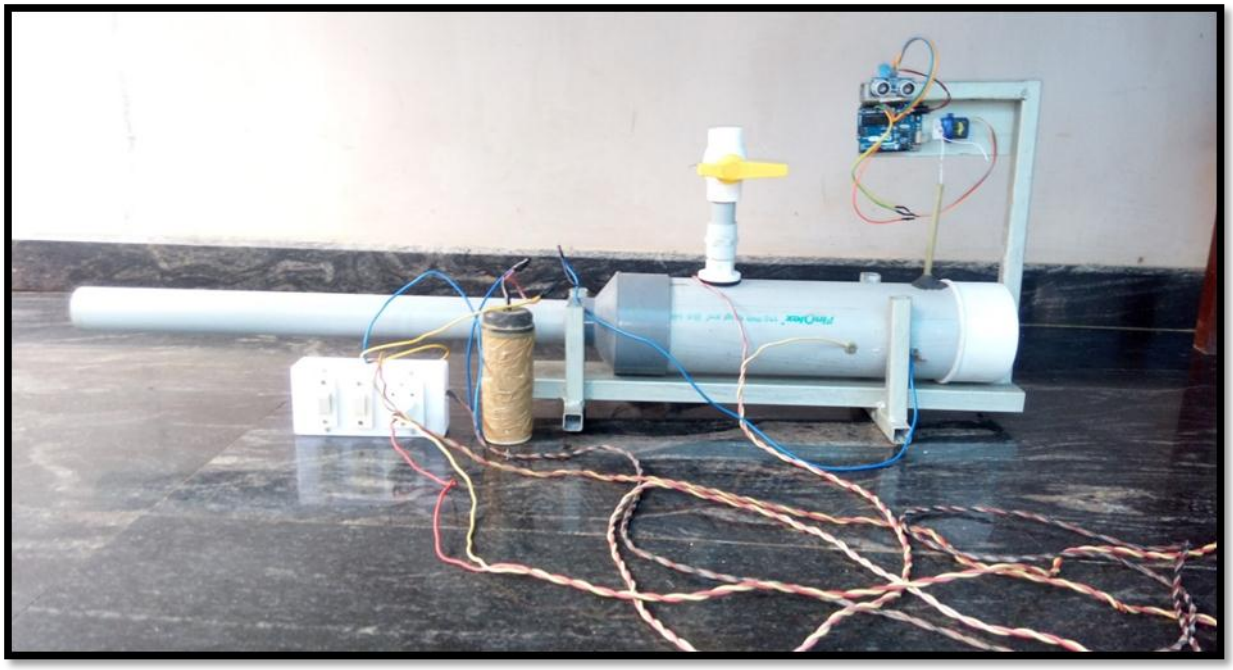


Fig. 1. Diagram of Proposed System

3.1.1 First generation



3.1.2 Second generation

4. CONCLUSIONS

- Every human life is important, no human life should lose in the rescue operations so the better idea to adopt or implement a new equipment which can operate automatic.
- This equipment can fulfill the needs assigned to it.
- The equipment is dedicated to the all rescue officers how were scarified their life during such operation

REFERENCES

[1] United Nations Environmental Programme (2013),"Guidelines for National Waste Management Strategies Moving from Challenges to Opportunities".

[2] Yusuf, N.M., Jidin, A.Z., Rahim, M.I,—Smart garbage monitoring system for waste management‖, MATEC Web of Conferences Engineering Technology International Conference, vol. 97, EDP Sciences (2017), p.01098.

[3] Isaac, R., Akshai, M,—SVASTHA: an effective solid waste management system for Thiruvalla Municipality in Android OS‖, Global Humanitarian Technology Conference: South Asia Satellite, GHTC-SAS, Trivandrum, India, IEEE (2013), pp. 254–259.

[4] Rajkamal, R., Anita, V., Nayaki, P.G., Ramya, K., Kayalvizhi, E.,—A novel approach for waste segregation at source level for effective generation of electricity— GREENBIN.‖, International Conference on Science Engineering and Management Research, ICSEMR, Chennai, India, IEEE(2014), pp. 1–4.

[5] Kumar, N.S., Vuayalakshmi, B., Prarthana, R.J., Shankar, A., —IOT based smart garbage alert system using Arduino UNO.‖, Region 10 Conference, TENCON, Singapore, IEEE (2016), pp. 1028– 1034.

[6] Thakker, S., Narayanamoorthi, R., —Smart and wireless waste management‖, International Conference on Innovations in Information, Embedded and Communication Systems, ICIIECS, Coimbatore, India, IEEE (2015), pp. 1–4.