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A Knowledge Based Farm Protection System to Manage Crop Vandalization

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Abstract: Human-Wildlife Conflict (HWC) has direct & indirect negative effects, as crop loss, and livestock loss in India. For crop protection many technical security systems are available thaw they are technologically feasible are not viable financially for the poor land holders working for crop production. Fault removal or maintenance of available techniques are The issues as barrier for the rural people .The proposed work is aimed to reduce the crop vandalization using less complex and cheaper protection system. Solar photovoltaic energy source supported Arduino base circuit is used in this system there for useful for off grid locations too.
Keywords: Bhongaspekar, LED, ARDUINO, GSM modem, PIR sensor, SPV.

I. INTRODUCTION

A nation-wide study of the HWC around wildlife reserves across the country has highlighted the need for a comprehensive evaluation of the current mitigation strategies as despite widespread use of protection measures for crops and livestock, many households continued to experience losses [1]. The farm vandalization problem is so pronounced that sometimes farmers decide to leave the area barren due to these animal attacks. Agriculture is the broadest economic sector and plays a vital role in the overall socio-economic factor of India. The increasing news of wild animals raiding agricultural crops during harvest season shows that this animal can destroy a farmer's livelihood [3].The important thing is to prevent the animals which moves from the forest into the agricultural land, has become one of the rising factor that affects agriculture. Sometimes people also lost their lives while they try to banish the animals out of their place [4]. Wild animals that enter into the agricultural land can be monitored and A repelled device as farm watchman (with loud speaker and LED light) is used to produce sound and irritates the animals and redirect them. Now a day's technology advancement in each and every sector requires ample amount of power supply. The huge energy bill are cost involved, an alternate energy source leads to financial burden to the rural poor people. So many crop protections Scheme are available but they are technologically complex as well as costlier.

II. LITERATURE REVIEW

Abhijeet Bayani. et al, in there proposed work visual damage assessment that can potentially undermine conservation effect since there is order of magnitude difference between farmers perception of damage and the compensation given by the government [2]. Sonal D. Khandare. et at, in there proposed scheme to resolve the issue of wild animal raiding agricultural crop and destroy farmer livelihood this system work on SPV and solar fencing with alarming system for protection of crop[3]. Atchaya V. et al, in their work proposed IOT based with Noise Repelled device (NRD) farm protection and monitoring the field [4]. P.Rekha.et al, Proposed Arduino and GSM based protection scheme with noise system for protection and alert farm owner under animal attack and minimize the manual intervention [5]. Vikas Bavaneet et al, designed a smart embedded farmland protection and surveillance system help to keep away such wild animal from the farmland as well as provides surveillance functionality [6]. Srikanth N et al, propose automatic crop monitoring system with alarm to woo the animal away from the field [7]. Dugyala Karthik et al, in there proposed work IOT based system which continuously monitoring the field with raspberry pi and repelled device [8]. D.M.Kadam. et al, Proposed work on SPV based electrical fencing system for crop protection [9].
This paper proposed a simple scheme of farm protection for off grid remotely situated villagers two.

III. EXISTING SYSTEAM

A major challenge in agricultural is to prevent agricultural land from animal. In early days methods by erecting human puppets and effigies in their farms, which is ineffective in warding off the wild animals sand, though is useful to some extent to ward off birds. The other commonly used methods by the farmers in order to prevent the crop vandalization by animals include building physical barriers, use of electric fences and manual surveillance various such exhaustive and dangerous methods.

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A. Proposed System

1) *Preventing Agriculture Land From Wild Animal:* Choice of proper methods always important in the field of agricultural with the use of less technological system for poor and uneducated farmers, having less maintenance as well as cheaper for installations.
2) *Farm watchman machine without Arduino:* Farm watchman is simple ON-OFF machine like puppets This machine having loud sound system (Bhongs or drum) as repelling device so that animal scared due to loud noise and do not enter to the farm. LED light is an additional fetchers which will continually glowing with SPV energy supply so the animal do not dare to enter.
3) *Farm watchman machine with Arduino and GSM Technic:* In this propose work we connected that farm watchman machine with Arduino board and PIR sensor. If first system failed to work or big wild animal refuse to go away then this system will work. When animals come near to the PIR sensor and it detects the animal movement. After getting initial input signal, it is passed for further processing. Then it will be given to the Arduino (microcontroller). Proposed system will be activated, immediately buzzer (farm watchman machine) will be on, at the same time it sends an SMS and makes call to the owner. Microcontroller Block is used for reading the inputs from PIR and Whole process is controlled by microcontroller. The GSM module is used for sending SMS and making call to farmer when movement is detected. For this system farmer must have a cell phone.
4) *Farm Watchman Machine System With Arduino*

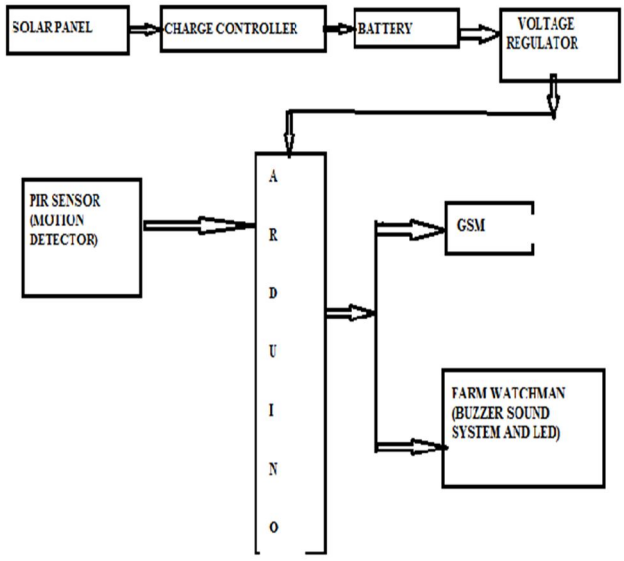


Fig.(a): Proposed system

B. Arduino

Arduino is open-source computer hardware and software company, project and user community that designs and manufactures microcontroller-based kits for building digital devices and interactive objects that can sense and control objects in the physical world. For programming the microcontrollers, the Arduino project provides an integrated development environment (IDE) based on the Processing project, which includes support for the C and C++ programming languages



.Fig.(b) :Arduino

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C. GSM

GSM stands for Global System for Mobile Communications. A Modem is a device which modulates and demodulates signals as required to meet the communication requirements. It modulates an analog carrier signal to encode digital information, and also demodulates such a carrier signal to decode the transmitted information. The modem we are using is SIMCOM SIM300. It is a Tri-band GSM/GPRS Modem as it can detect and operate at three frequencies (EGSM 900 MHz, DCS 1800 MHz and PCS1900 Mhz). Default operating frequencies are EGSM 900MHz and DCS 1800MHz



Fig.(c) :GSM

D. Bhonga Spekar

A buzzer is a loud noise maker. Most modern ones are civil defense or air- raid sirens, tornado sirens, or the sirens on emergency service vehicles such as ambulances, police cars and fire trucks. In this farm watchman machine with the buzzer (loud noise system) LED also put in same one for lighting purpose in agricultural area so wild animal away from this.



Fig.(d): Bhonga spekar

IV. CONCLUSION

The problem of crop vandalization by wild animals has become a major problem. It requires urgent attention as no effective solution exists till date for this problem. Thus this project carries a social relevance as it aims to address this problem. This will also help them in achieving better crop yields thus leading to their economic wellbeing due to less crop vandalization.

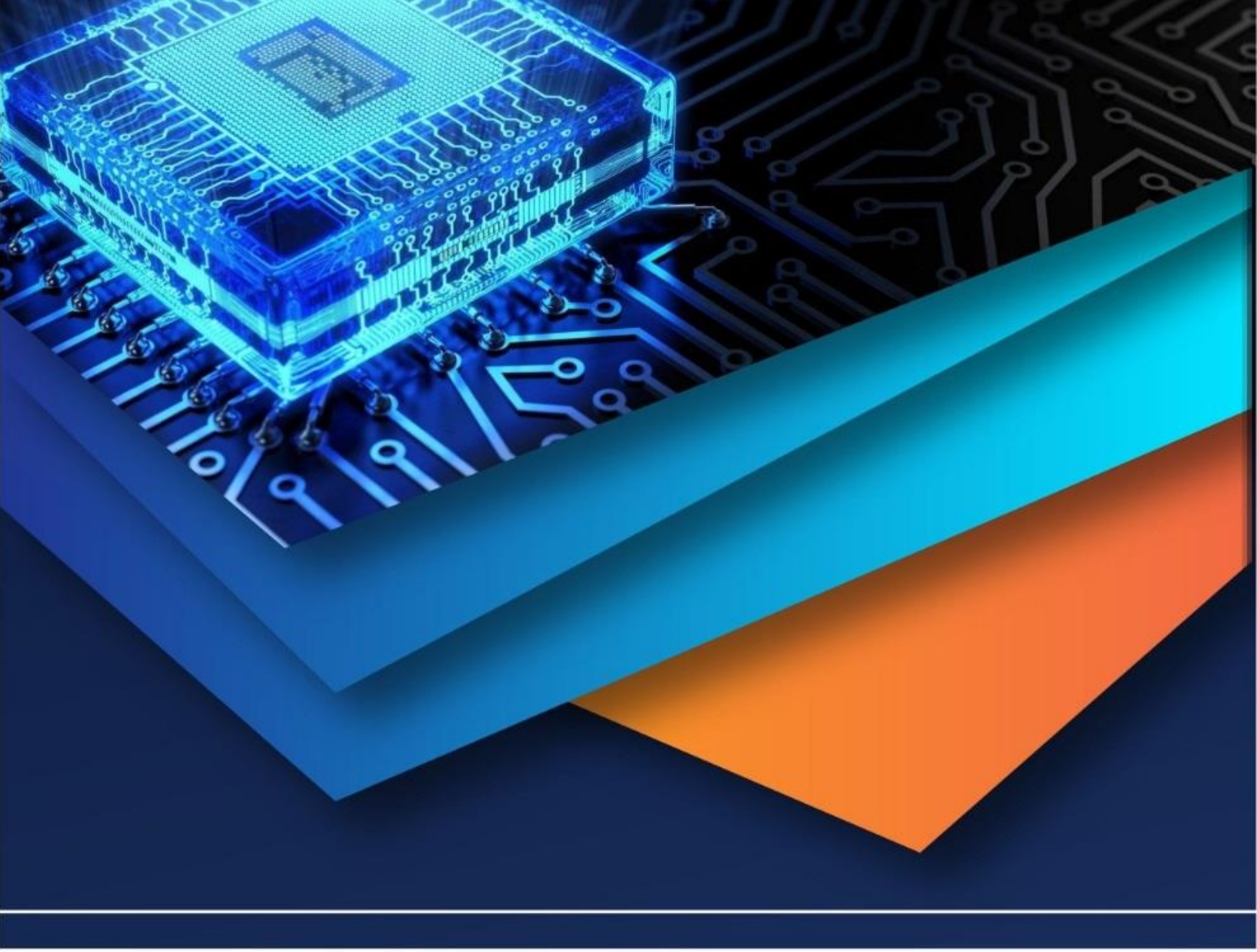
V. FUTURE WORK

The proposed protection system is planned to develop smart agro system to connect with fire sensor, web camera function and soil moisture sensor for irrigation system in field.

REFERANCES

[1] Human-wildlife conflict (HWC) in Agro-pastoral contex issues and policies (https://www.icar.gov.in/nasf/documents/Human%20Animal%20Conflict%20in%20Agro-Pastoral%20Context%20-Issues%20&%20Policies.) Indian council of agricultural Reserch New Delhi.
[2] Abhijit Bayani,et al "Assessment of crop Damage By Protection wild Mammalian Herbivores on the Western boundary of Tadoba-andheri Tiger Reserve(TATR)"central India. PLOS ONE|DOI:10.1371/journal.pone.0153854 april19,2016 PP 1-18.
[3] Sonal D. Khandare, et al, "A Review on solar power fencing based on GSM technology for agricultural" International journal for engineering applications and technology. Vol 3 issue 9, 2017 ,PP (1-4) ISSN:2321-8134
[4] Atchaya.V, et al, "Impelementation of crop Protection system agains wild animal attack" Department of ECE Sengunthor tiruchengodw. International journal of Advance Technology in engineering and science.Vol 7 issue 2,february 2019 ,PP(21-28),ISSN 2348-7550.
[5] P.Rekha et al,"smartAgro using Arduino and GSM"Department of computer science and Engineering Sri muthukumar Instutute of technology chennai.International journal of Emerging Technologies in engineering Research.vol 5 issue 3,March 2017,PP(38-40),ISSN:2454-6410.
[6] Vikas Bawne et al, "Protection of crop from wild animal using Intelligent Surveillance System"International Journal of Research in Advent Technology,april 2018,PP(1-7),ISSN:2321-9637.
[7] Srikanth N. et al,"smart crop protection system from animal and fire using arduino" Assistant Professor and UG student dept. of ECE, RYMEC Ballari. International Journal of Engineering research in Electronics and communication. vol 6 Issue 4, april2019,PP(17-21),ISSN 2394-6849.
[8] Dugyala Karthik, et al, "smart crop protection with Image capture Over IOT" International Journal of advanced Information Science and technology,vol 6 issue 11,november 2017,PP(37-40),ISSN:2319:2682.
[9] D.M Kadam.et al,"Performance of solar power fencing system for agricultural" Journal of Agricultural Technology ,vol 7(5):1199-1209. August 2011, PP(1199-1209),ISSN 1686-9141.
[10] Solar Power fencing for Crop Protection from monkey Menace and Domestic wild animal in Himachal Pradesh. Er.A.K. Bhardwaj.
[11] Ministry of Agricultural ,Cooperation and Farmers welfare.(www.agricoop.nic.in)
[12] Ministry of power.(www.power.nic.in)

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