ANIMAL AND BIRD REPELLER

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ABSTRACT

Many times, local animals like buffaloes, cows, goats, birds, etc. destroy crops on farms. The farmers suffer enormous losses as a result. Farmers are not able to guard their fields around-the-clock or barricade entire areas. Thus, we are putting up an automated crop protection system against animals. This is a microcontroller-based system using PIC family microcontroller. This system uses a motion sensor to detect wild animals approaching near the field. In such a case the sensor signals the microcontroller to act. The microcontroller now sounds an alarm to woo the animals away from the field as well as sends SMS to the farmer so that he may know about the issue and come to the spot in case the animals don't turn away by the alarm. This ensures complete safety of crops from animals thus protecting the farmers loss. Overall, the proposed system offers a comprehensive solution for animal and bird repellent applications, combining advanced sensing technology with efficient communication capabilities to ensure effective deterrence and user convenience.

KEYWORDS: Repeller, Remote control integration, smart animal deterrent.

1.INTRODUCTION

In the face of escalating global population and evolving environmental challenges, the agricultural sector stands at a critical juncture. The need for efficient, sustainable, and technology-driven solutions has never been more pressing. This report delves into the realm of "Smart Crop Protection," a paradigm that harnesses cutting-edge technologies to optimize agricultural practices, mitigate risks, and enhance yields. Traditional farming methods are facing unprecedented challenges, from climate change and resource scarcity to evolving pest and disease patterns. In response, the integration of smart technologies has emerged as a promising avenue for revolutionizing crop protection strategies. This report explores the multifaceted aspects of smart crop protection, encompassing precision agriculture, data analytics, Internet of Things (IoT), and artificial intelligence, among other innovative approaches. As we navigate the complex landscape of modern agriculture, the adoption of smart crop protection techniques offers a compelling narrative of sustainability, resource optimization, and resilience. This report aims to provide a comprehensive overview of the current state of smart crop protection, highlighting key technologies, benefits, challenges, and future prospects. Join us on this exploration of how technology is reshaping the future of agriculture, ensuring a more resilient and productive global food system.

1.1.OBJECTIVE

The objective of an animal and bird Repeller is to create a humane, non-lethal, and effective solution for deterring wildlife from specific areas. The device aims to protect crops, property, and human health by utilizing innovative technologies such as sound, light, or other non-harmful methods. The primary goals include minimizing damage caused by animals and birds, promoting coexistence between human activities and wildlife, and ensuring a sustainable and environmentally friendly approach to wildlife management. The Repeller should deter animals and birds without causing harm, offering a balance between protecting human interests and respecting the natural ecosystem. It aims to protect local ecosystems, preserve agricultural produce, reduce public health risks, maintain property integrity, reduce noise and nuisance, and promote resource efficiency. The device is adaptable, offering customizable features to suit

different environments. It also educates users about wildlife behaviour and promotes community harmony. The goal is to balance human activities with the preservation of natural ecosystems, fostering a balanced and mutually beneficial coexistence.

1.2.LITERATURE SURVEY

This paper presents plant-specific mechanisms as stimuli in recently developed ways for smart release of crop protection agents (CPAs). Researched by Florin Oancea, Oana A, Florica, Sorina Dinu Polymers 2 (3), 229-251, 2010. It describes the responsive polymer. techniques already in use with prospective applications to plant protection This paper proposes an intelligent decision system architecture for agriculture 5.0 ecosystems, addressing challenges like climate change, pests, diseases, and costs, while focusing on data-driven approaches. Vasiliki Balaska, Zoe Adamidou, Zisis Vrisa's, Antonios Castratos Machines 11 (8), 774, through analysis from 2023. Recent manufacturing advancements have created nanomaterials with unique properties for various applications, including medicine, environmental science, and food processing. Lav R Khot, Sindhuja Sankaran, Joe Mari Maja, Reza Ehsani, Edmund W Schuster Crop protection, 2012 However, their use in agriculture, particularly plant protection, is under-explored in research.

1.3.PROBLEM STATEMENT

The need to mitigate issues related to wildlife interference in specific areas. Challenges include damage to crops, property, or potential health hazards caused by the presence of animals and birds. The objective is to develop an effective Repeller that minimizes problems without causing harm to wildlife, ensuring balance between human activities and the conservation of ecosystems. Key considerations include the device's efficiency, and its ability to deter animals and birds in a humane and non-disruptive manner.

2.EXISTING SYSTEM

An ultrasonic Repeller is a device that emits high-frequency sound waves to deter or repel pests. It uses ultrasonic technology, targeting specific pests like rodents, insects, or birds. The device can be installed in gardens, homes, or agricultural fields, and may have motion sensors for detection. It can operate continuously or intermittently, and its effectiveness depends on the type of environment and pest behaviour. However, the effectiveness may be limited by obstacles [1]. A visual Repeller is a device that uses light-based repulsion to deter pests or unwanted animals. It uses bright lights, strobes, or flashing patterns to create visual disturbances for pests. Some Repeller's use specific colours or intensity to be disruptive. Motion sensors detect movement, activating the deterrent when it's detected. These devices can target various pests, such as birds, rodents, or insects. They can be installed in areas with pest problems, powered by batteries, solar panels, or electrical outlets. Effectiveness varies depending on the pest and environment [2].

3.PROPOSED SYSTEM

A proposed system for crop protection could involve integrating a microcontroller, motion sensor, and GSM module. The microcontroller would serve as the central processing unit, receiving inputs from the motion sensor to detect intruders or potential threats to the crops. When motion is detected, the microcontroller can trigger the GSM module to send a notification or alert to the farmer's mobile phone, allowing quick response. Additionally, the system could be designed to activate deterrents, such as lights or sound alarms, to scare off intruders. The microcontroller can be programmed to log and timestamp events, providing valuable data for analysis and decision-making. Make sure to consider power efficiency and robust communication protocols to ensure reliable operation in agricultural environments. The GSM module utilizes cellular network connectivity to transmit alert messages, providing remote monitoring and notification capabilities. These alerts can include information about the detected intrusion event, such as the location and time of occurrence. By leveraging GSM technology, the system ensures that users receive timely notifications, allowing them to take appropriate action in response to intrusion events, even when they are not physically present at the site of deployment.

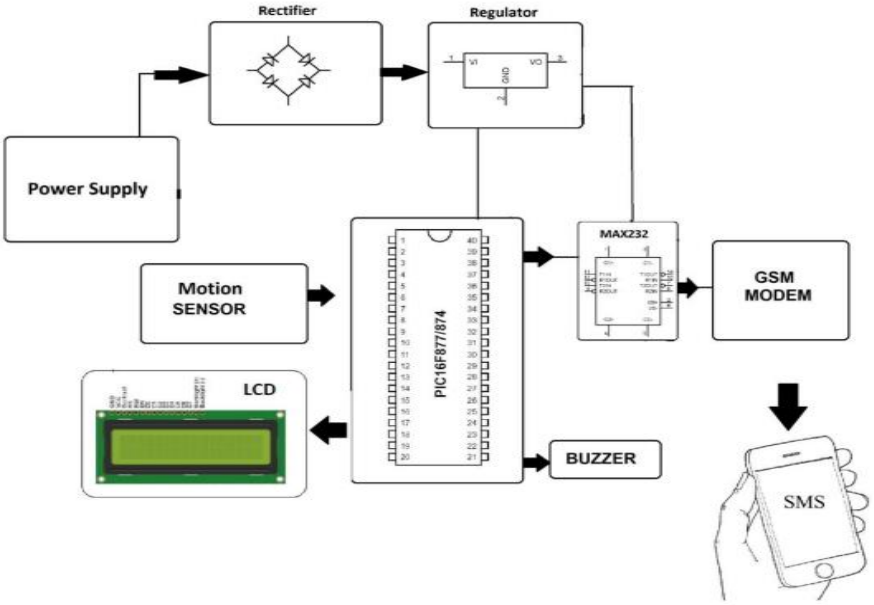

Fig 1: Block Diagram

4.RESULT

The implementation of Programmable Integrated Circuits (PIC) in smart crop protection systems marks a significant advancement in precision agriculture. This section presents the key findings and subsequent discussions stemming from the application of PIC technology in safeguarding crops. While the results highlight the promising outcomes of PIC technology, discussions delve into the challenges associated with its implementation. Issues such as initial investment costs, technological literacy among farmers, and the need for standardized protocols are identified as potential hurdles that require attention for widespread adoption. The results and discussions presented in this report underscore the transformative impact of PIC technology on smart crop protection. From enhanced monitoring capabilities to data-driven decision-making, the integration of PICs demonstrates its potential to revolutionize agriculture, paving the way for a more sustainable and resilient future in crop protection practices.

5.CONCLUSION

The problem of crop canalization by wild animals has become a major social problem in current time. It requires urgent attention as no effective solution exists till date for this problem. Thus this project carries a great social relevance as it aims to address this problem. This project will help farmers in protecting their orchards and fields and save them from significant financial losses and will save them from the unproductive efforts that they endure for the protection their fields. This will also help them in achieving better crop yields thus leading to their economic wellbeing.

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