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**IOT BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE**

**ABSTRACT**

Agriculture is the backbone of the economy but because of animal interference in agricultural lands, there will be huge loss of crops. This article provides a comprehensive review of various methods adopted by farmers to protect their crops. The article also discusses use of modern technology in agriculture. Finally, this article reviews smart crop protection system using sensors, microcontroller and gsm module.

**Keywords** - microcontroller, sensors, GSM module, solar panel

**INTRODUCTION:-**

Crops in farms are many times ravaged by local animals like buffaloes, cows, goats, birds etc. This leads to huge losses for the farmer. Due to over population, it occurs a deforestation this results in shortage of food, water and shelter in forest areas. So, animal’s interference in residential areas is increasing day by day which affects human life and property causes human animal conflict but as per nature’s rule every living creature on this earth has important role in eco-system. Elephants and other animals coming in to contact with humans, impact negatively in various means such as by depredation of crops, damaging grain stores, water supplies, houses and other assets, injuring and death of humans. So here we propose automatic crop protection system from animals. This is a microcontroller-based system using PIC family microcontroller. These systems use a motion sensor to detect wild animal approaching near the field. In such a case the sensor signal the microcontroller to take action. Traditional methods used by farmers are given below.

**LITERATURE REVIEW:-**

One of the major economic issues faced by the country is agriculture as this is the sector which is source of livelihood for about 54% of Indians till date. Still today this sector is not well developed and faces lots of problems resulting into low productivity of crops. As 43% of land in India, is used for farming but contributes only 18% of the nation’s GDP. The poor condition of agriculture in the country is the point of concern for Indians. The rural farmers in India suffer from poverty and most of them are illiterate so there is lack of good extension services. The problem of wild life attack on crops i.e., crop Vandalization is becoming very common in the states of Tamil Nadu, Himachal Pradesh, Punjab, Haryana, Kerala and many other states. Wild animals like monkeys, elephants, wild pigs, deer, wild dogs, bison, nilgais, estray animals like cows and buffaloes and even birds like parakeets cause a lot of damage to crops by running over them.

The low productivity in India is a result of the following factor:

* According to World Bank's "India: Priorities for Agriculture and Rural Development", India's large
* agricultural subsidies are hampering productivity-enhancing investment. Over regulation of agriculture
* has increased costs, price risks and uncertainty. Government intervenes in labour, land, and credit
* markets. India has inadequate infrastructure and services. World Bank also says that the allocation of
* water is inefficient, unsustainable and inequitable. The irrigation infrastructure is deteriorating.
* Illiteracy, general socio-economic backwardness, slow progress in implementing land reforms and
* inadequate or inefficient finance and marketing services for farm produce.
* Very small (less than 20,000 m²) size of land holdings due to fragmentation, land ceiling acts and family
* disputes. Such small holdings are often over-manned, resulting in disguised unemployment and low
* productivity of labor.
* Illiteracy of farmers and their ignorance in the field of modern agricultural practices and technology,
* hampered by high costs and impracticality in the case of small land holdings.
* Inadequate Irrigation facilities and dependence of farmers on monsoon season, where good monsoon
* results in a vigorous growth while a poor monsoon leads to a sluggish growth for the economy as a whole.

Ministry of Agriculture is also working in direction to improve the conditions of farmers by employing different

programs like Insurance plan and ITC Limited plan. Under Insurance plan Agriculture Insurance Company

of India insures farmers cultivating wheat, fruit, rice and rubber in the event of natural disasters or catastrophic

crop failure, under the supervision of the Ministry of Agriculture.

ITC Limited plan aims to connect 20,000 villages to the Internet by 2013 providing provide farmers with up-todate crop prices for the first time, which should minimize losses incurred from neighbouring producers selling

early and in turn facilitate investment in rural areas.

**CONCLUSION:-**

The problem of crop vandalization by wild animals and fire 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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