

Review on Smart Fencing for Crop Field Protection

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Abstract. People living in countryside areas of Sri Lanka are facing difficulties as wild elephants who live in forest areas entering into villages. These wild elephants strike people and smash the properties of villagers. The dump yards, garbage management areas and, lands that have been cultivated are tempting elephants for food. Elephants enter the villages from the nearby forest in search of food. To stop elephants from coming into the village the government has made the electric fence. Elephants smash the electric fence and coming into the village putting these efforts in vain. Elephant attacks have increased over the years killing humans as well as elephants. These existing systems can take some action to minimize elephant attacks, but these systems have many failures. The methods like shouting, firing shots, setting up fires in farming grounds are some primary methods that can be used. Electric fencing is the present common solution to this problem, but this has not given expected protection due to several reasons. In this review, we are discussing some computing solutions to this problem. Raspberry Pi, Arduino, NodeMCU platforms and other technologies such as GSM, RFID, ZigBee based Smart fencing system is a good system that we can use to solve this human-elephant problem and also other animal issues that affect the cultivation. Artificial Intelligence, Machine learning, Deep Learning, Computer Vision can be used to further develop these kinds of Systems by analyzing complex behavior patterns, sounds, and images of wild animals.

Keywords: *Elephant Fence, Agricultural Lands, Wild Elephant, Human-Elephant Conflict, Crop Damages, Automated Electric Fence*