

Way-out for man-animal conflict for the protection of agricultural crops



1. Testing of Components:

- **Raspberry Pi Zero:**

Test the raspberry pi with Raspbian operating system that it is working properly or not.
Connect raspberry pi with a desktop and check it properly.

- **PIR Sensor:**

Test the PIR sensor separately with raspberry pi that it is detecting the motion properly or not.

- **Deep learning object detection algorithms:**

Check the object detection algorithm separately on a computer.
Write a python script using OpenCV library for image processing.
Give the various images of animals as input to this script and check the performance of algorithm.

If object detection algorithm gives accuracy more than 85% then we can say that our algorithm is working well.

- **Repellent System:**

Check the repellent system that it is producing ultrasonic sound with desired frequency or not.

Connect the repellent system with power source and manually check this by changing duty cycle an input voltage.

2. Integration Testing:

For the testing of integrated component first create the practical conditions.

After creating practical conditions deploy the sensor node in farmland and check the performance.

Set the direction of PIR Sensor towards the entry side of farmland.

Set the focus of pi camera such that it can take images properly. Use al least 8MP camera for this task.

Run the python script in raspberry pi that governs the whole integration and test the performance of system.

If performance is well then automate the system otherwise process further improvement and then automate.

Now system is ready for practical conditions.