TECHNICAL PROJECT REPORT

TITLE OF INVENTION / PROJECT:

Mosquito Detector and Counter

TEAM MEMBERS / INVENTORS:

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Section – 1 (IPR Related)

BRIEF ABSTRACT (500 WORDS):

Mosquitoes are a major vector for malaria, causing hundreds of thousands of deaths in the developing world each year. Not only is the prevention of mosquito bites of paramount importance to the reduction of malaria transmission cases. Typically the presence and detection of malaria mosquitoes are helpful ,If we are to gather timely, large-scale data to improve this situation, we need to automate the process of mosquito detection and classification as much as possible this we can do by detecting the mosquito and storing them in the cloud then we will analyse data by using Big Data and Analytics so that we can get the data that where there is tendency to have more diseases like malaria etc, and that is also useful for the government to see which areas are highly mosquito pruned and whether the chemical required to kill mosquitoes is enough or not. We are helping this issue by making the mosquito counting device in which IR sensors are placed adjacent to each other. And are placed parallel and facing each other, with the help of Arduino we will set the frequency at which we will detect the mosquito and the amount of mosquito it will pass from sensor it will count and display it on LCD. Some modifications which we can do to cater new solutions can be: Sensitivity of the sensors can be increased by using higher resolution ADC. We can connect the data retrieved from the sensor or ADC and store it in cloud storage to view or use the data from anywhere.

Existing state-of-the-art and Drawbacks in existing state-of-the-art

- There are no existing state of art that does what our mosquito detection device does.

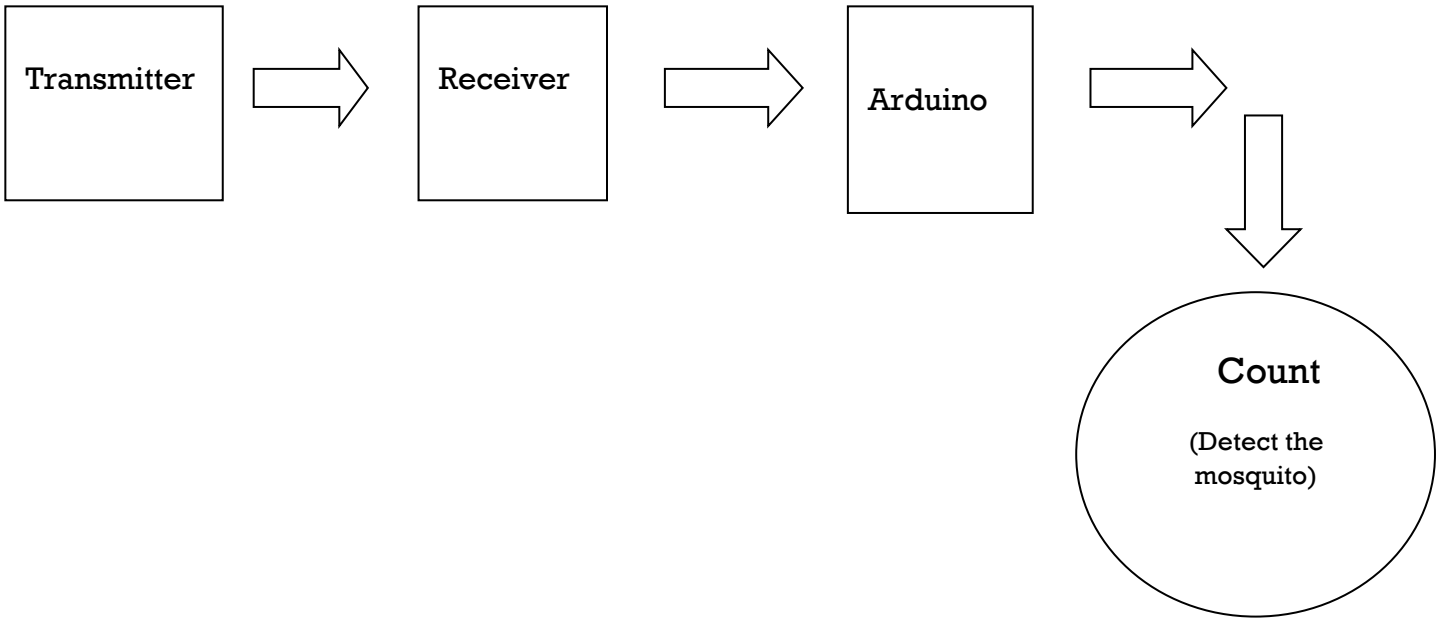
Novel/Additional modifications that you can propose to improve upon drawbacks

- Sensitivity of the sensors can be increased by using higher resolution ADC.
- We can connect the data retrieved from the sensor or ADC and store it in cloud storage to view or use the data from anywhere.

Advantages

- Send Data to websites, cloud and app of mosquitoes in particular area.
- Would help in surveying the number of mosquitoes in different areas.

Block Diagram



Section – 2 (Real Project) : Mosquito Detector & Counter

Akash Kumar Singhal – 18BCS3762
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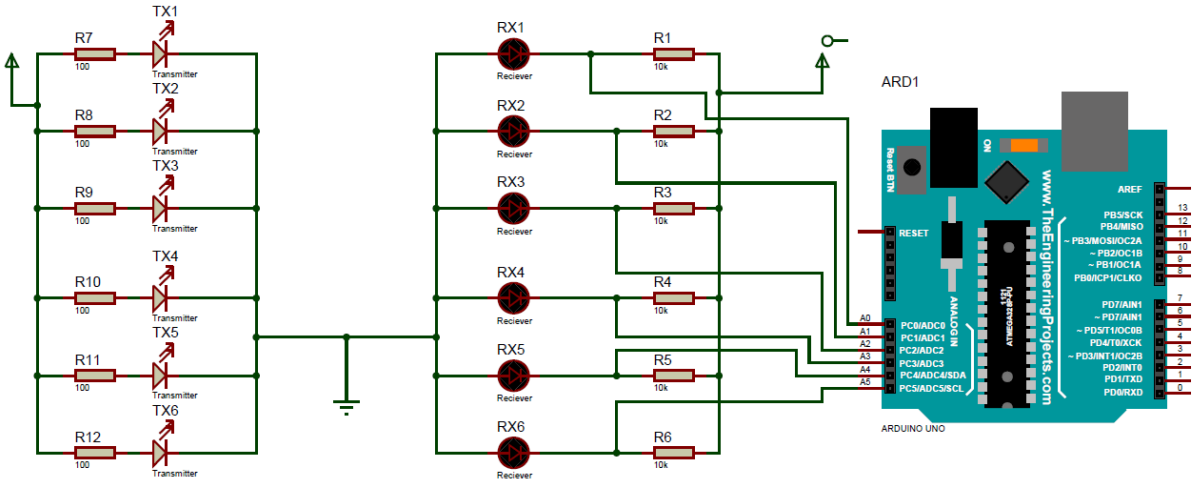
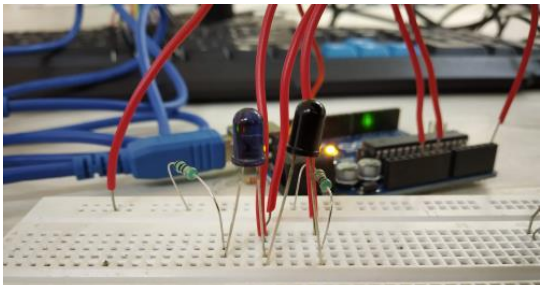
Namit Raj – 18BCS3785

MATERIALS

Arduino (UNO,DUE,MEGA), jumper wires, wires, soldering iron and wire, IR transmitter and receivers, PCB, resistors of 10k and 100 ohm resistances.

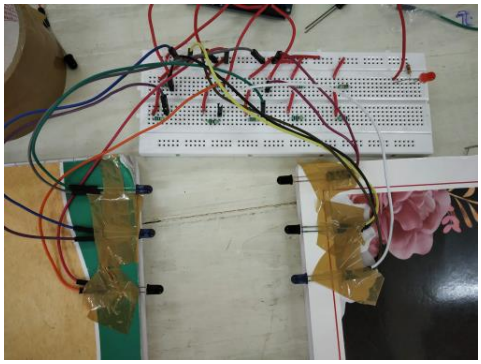
CIRCUIT DIAGRAM



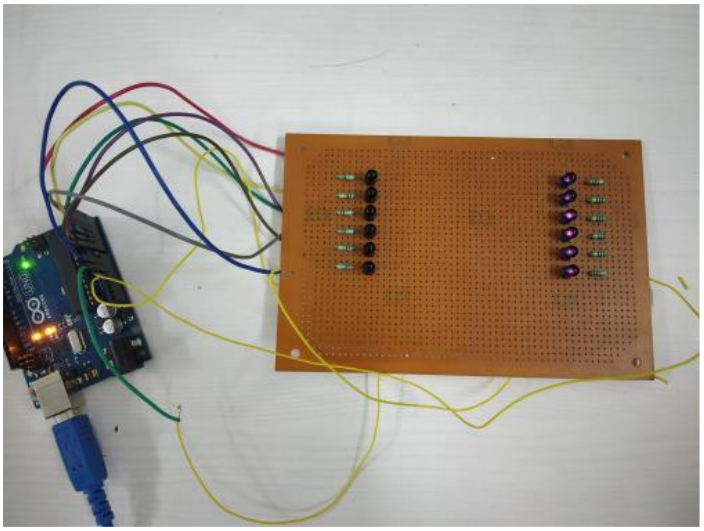


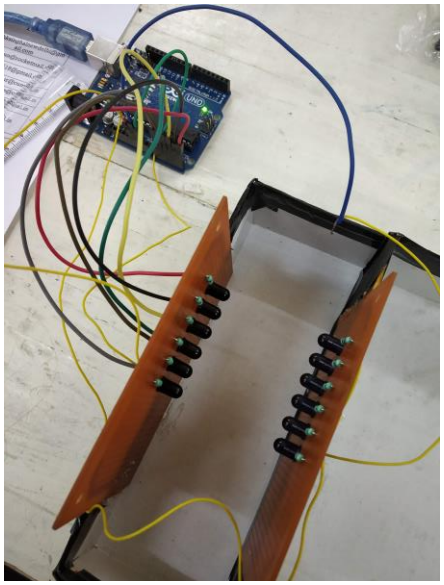
STEPS OF CIRCUIT COMPLETION

1. Made a prototype using breadboard in which IR sensors were placed adjacent to each other.
   Result - The sensors didn't worked.
2. Reconfigured the prototype when transmitter and receiver were placed parallel and facing each other falling at line of sight.
   Result - IR sensors worked to detect thin wires but failed to detect small objects.
3. Made Array of transmitters and receivers using breadboard.
   Result - IR sensors efficiency increased.



4. Made permanent connections using PCB.
   Result - Tested different ways mosquitoes can pass through the line of sight. But failed to detect mosquitoes.





5. Tried with different ADCs of different bit rates.
   Result - Sensitivity of the sensors increased with higher bit rate resolution.
6. Improved the codes efficiency.
   Result - Sensitivity increased a little, testing got easier and motion could be detected for smaller objects when compared to initial testing. But failed to detect mosquitoes.

Current Progress: -

Right now we are able to detect objects which are half in size in comparison to those which were detected in the initial testing. The sensors are detecting a paper of ball of about 5mm diameter when dropped from a height in a way that it passes from between the transmitters and receivers. But it still fails to detect the mosquitoes.

Assumed solution/ Next step: -

The next step would be to try the same setup of our project with an ADC with a higher bit rate resolution, most probably 16 bit.

PROGRAM CODE

Github Link of Project: https://github.com/akashksinghal/Mosquito-Detector-and-Counter

QR CODE FOR THIS