

What is claimed is:

1. A system for detecting at least one pathogen carried by an insect of a target insect species, the system comprising:

5 a memory for storing at least one predetermined physical parameter corresponding to at least one target insect species, wherein the at least one predetermined physical parameter corresponds to first data, and wherein an insect is attracted to the system using first and second lures;

10 at least one sensor for determining at least one physical parameter of the insect approaching the system and generating second data based on the at least one physical parameter of the insect;

15 a processor connected to the memory and the at least one sensor for receiving the first and second data, respectively, comparing the first data with the second data, and generating an identification signal based on the comparison of the first and second data, wherein the identification signal indicates whether a species of the insect matches the at least one target insect species;

 a fan connected to the processor for receiving the identification signal, wherein the fan switches on based on the identification signal; and

20 a compartment connected to the fan for facilitating killing of the insect, wherein the fan pulls the insect into the compartment, and wherein the compartment includes:

 a zapper circuit connected to a high-voltage supply for killing the insect, wherein plasma is generated inside the compartment when the insect is killed;

 a light source for emitting light and generating the second lure, wherein the light is incident on the killed insect;

25 an oxidizing catalyst for catalyzing a photocatalytic process, wherein the killed insect is decomposed using the light and the oxidizing catalyst during the photocatalytic process, and wherein the photocatalytic process generates the first lure; and

30 a biosensor for receiving light emitted by the plasma and the light emitted by the light source, and generating an absorption spectrum, wherein the at least one pathogen carried by the killed insect is identified based on the absorption

spectrum, and wherein the processor receives the absorption spectrum and generates collective data including at least one of the absorption spectrum and a count of insects of the at least one target species.

- 5 2. The system of claim 1, further comprising a transmitter connected to the processor for transmitting the collective data to a data processing center, wherein the data processing center generates a warning signal based on the collective data, and wherein the warning signal indicates an onset of an epidemic.
- 10 3. The system of claim 1, wherein the first lure is carbon dioxide and the second lure is heat.
4. The system of claim 1, wherein the at least one sensor is a microwave radar sensor.
- 15 5. The system of claim 1, wherein the at least one physical parameter is a wingbeat frequency of the insect.
6. The system of claim 1, wherein the fan is switched off when the first data does not match the second data, and wherein the fan is switched on when the first data matches the second data.
- 20 7. The system of claim 1, wherein the zapper circuit includes a grid of wires, and wherein when the insect comes in contact with the grid of wires, an electric current passes through the insect, thereby killing the insect.
- 25 8. The system of claim 1, wherein the oxidizing catalyst is titanium dioxide.
9. The system of claim 1, wherein the biosensor generates light signal data based on the light emitted by the plasma and the light source, wherein the biosensor samples the light signal data at a predetermined sampling rate and generates the absorption spectrum, and
- 30 wherein the light source is an ultraviolet (UV) light source.

10. The system of claim 1, wherein the oxidizing catalyst further purifies air passing through the system.

11. The system of claim 1, further comprising a pollution sensor for identifying particulate matter in an environment of the system, wherein the collective data further includes particulate matter measurement corresponding to the identified particulate matter.

12. The system of claim 1, further comprising a global positioning system (GPS) for determining a location of the system and an accelerometer for determining an acceleration of the system, wherein the GPS and the accelerometer detect tampering of the system, and wherein the collective data further includes at least one of the location and the acceleration of the system.

13. The system of claim 1, further comprising a humidity sensor, a temperature sensor, a wind speed sensor, a solar intensity sensor, and a rain sensor for determining humidity, temperature, wind speed, light intensity, and rainfall values, respectively, wherein the collective data further includes at least one of the humidity, temperature, wind speed, light intensity, and rainfall values.

14. The system of claim 13, wherein the zapper circuit and the light source are operated based on the rainfall values and a rainfall threshold value.

15. The system of claim 1, further comprising an energy harvesting system for utilizing renewable energy, wherein the energy harvesting system provides a power supply to the system.

16. A system for detecting at least one pathogen carried by an insect of a target insect species, the system comprising:

a memory for storing at least one predetermined physical parameter corresponding to at least one target insect species, wherein the at least one predetermined physical parameter corresponds to first data, and wherein an insect is attracted to the system using first and second lures;

at least one first sensor for determining at least one physical parameter of the insect approaching the system and generating second data based on the at least one physical parameter of the insect;

at least one second sensor for determining at least one environmental parameter of an environment of the system;

a processor connected to the memory, the at least one first sensor, and the at least one second sensor for receiving the first data, the second data, and the determined at least one environmental parameter of the environment of the system, respectively, comparing the first data with the second data, and generating an identification signal based on the comparison of the first and second data, wherein the identification signal indicates whether a species of the insect matches the target insect species;

a fan connected to the processor for receiving the identification signal, wherein the fan switches on based on the identification signal; and

a compartment connected to the fan for facilitating killing of the insect, wherein the fan pulls the insect into the compartment, and wherein the compartment includes:

a zapper circuit connected to a high-voltage supply for killing the insect, wherein plasma is generated inside the compartment when the insect is killed;

a light source for emitting light, wherein the light is incident on the killed insect;

an oxidizing catalyst for catalyzing a photocatalytic process, wherein the killed insect is decomposed using the light and the oxidizing catalyst during the photocatalytic process, and wherein the photocatalytic process generates the first and second lures; and

a biosensor for receiving light emitted by the plasma and the light emitted by the light source, and generating an absorption spectrum, wherein the at least one pathogen carried by the killed insect is identified based on the absorption spectrum, and wherein the processor receives the absorption spectrum and generates collective data including at least one of the absorption spectrum and a count of insects of the at least one target species.

17. The system of claim 16, further comprising a transmitter connected to the processor for transmitting the collective data to a data processing center, wherein the data processing center generates a warning signal based on the collective data, and wherein the warning signal indicates an onset of an epidemic.

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18. The system of claim 16, wherein the first lure is carbon dioxide and the second lure is heat.

10 19. The system of claim 16, wherein the zapper circuit includes a grid of wires, and wherein when the insect comes in contact with the grid of wires, an electric current passes through the insect, thereby killing the insect.

15 20. The system of claim 16, wherein the biosensor generates light signal data based on the light emitted by the plasma and the light source, and wherein the biosensor samples the light signal data at a predetermined sampling rate and generates the absorption spectrum.