CLAIMS

1. ~~A vehicle contents inspection system for inspecting contents within a moving vehicle, the system comprising:~~

~~a vehicle entry gate;~~

~~an exit;~~

~~a pair of radiation shielding walls extending from the vehicle entry gate and exit, and having a space therebetween that defines a shield wall radiation zone which includes a main beam zone;~~

~~a radiator for triggering radiation emission of which a radiation main beam is emitted at the main beam zone across the radiation shielding walls towards one or more radiation detection arrays to conduct a scanning process to inspect the contents within the vehicle that passes through the main beam zone, the radiator is switched on to emit radiation when the vehicle reaches the main beam zone and is switched off when the vehicle completely passed through the main beam zone; and~~

~~a sensing device that triggers the switching on or off of the radiator at the main beam zone and ensures clearance at the exit;~~

~~wherein the vehicle entry gate is configured to allow a subsequent vehicle to enter the shield wall radiation zone after a prior vehicle completely passed through the main beam zone but still remaining within the shield wall radiation zone, and upon detection of clearance of the exit by the sensing~~

~~device after the prior vehicle exits the shield wall radiation zone through the exit, the subsequent vehicle is allowed to enter the main beam zone to begin the scanning process.~~

A vehicle contents inspection system for inspecting contents within a moving vehicle, said system comprising:

a vehicle entry gate for facilitating entry of said vehicle;

an exit;

a control unit for controlling operations of said system for scanning said vehicle;

a pair of radiation shielding walls extending from the vehicle entry gate to the exit, having a space therebetween that defines a shielding wall radiation zone to contain dispersed and reflected radiation, which includes a main beam zone;

a radiator, for triggering radiation emission of which a radiation main beam is emitted at the main beam zone across the radiation shielding walls to conduct a scanning process to inspect the contents within the vehicle that passes through the main beam zone, the radiator is switched on to emit radiation when the vehicle reaches the main beam zone and is switched off when the vehicle completely passed through the main beam zone;

an exit vehicle movement monitoring device for monitoring exit movement of said vehicle to ensure clearance at the exit;

a radiation stop sensor that triggers the radiation to stop; and

a vehicle and container optical recognition system for scanning license plate and container number of said vehicle,

wherein said system is configured to

provide scanning comprising installation of X-ray or gamma ray inspection; and

have its vehicle entry gate allow a subsequent vehicle to enter the shielding wall radiation zone after a prior vehicle completely passed through the main beam zone but still remaining within the shielding wall radiation zone, and upon detection of clearance of the exit by the exit vehicle movement monitoring device after the prior vehicle exits the shielding wall radiation zone through the exit, the subsequent vehicle is allowed to enter the main beam zone to begin the scanning process.

2. ~~The system as claimed in claim 1, wherein the radiation shielding wall is installed with a vehicle and container optical recognition system for scanning a license plate, a container number, or both, of the vehicle; and a control system for facilitating operations of the radiator, the sensing device and the vehicle entry gate.~~

The system as claimed in claim 1, further comprising an incoming traffic monitoring device.

3. ~~The system as claimed in Claim 2, further comprising a control system for facilitating operations of the radiator, sensing device and the vehicle entry gate.~~

The system as claimed in claim 1, further comprising a database server.

4. ~~The system as claimed in any one of the preceding claims, further comprising one or more radiation monitoring devices, an incoming traffic monitoring device, an exit vehicle movement monitoring device, a barrier, and a traffic light, or a combination thereof.~~

The system as claimed in claim 1, further comprising a traffic light, one or more radiation monitoring devices, a barrier, or a combination thereof.

5. ~~The system as claimed in any one of the preceding claims, wherein the radiation is electromagnetic radiation being X-rays or gamma rays.~~

The system as claimed in claim 1, further comprising a remote sensing device.

6. ~~The system as claimed in any one of the preceding claims, wherein the sensing device is a radar or optical vision camera.~~

The system as claimed in claim 5, wherein the sensing device is a radar.

7. ~~The system as claimed in any one of the preceding claims,, wherein the sensing device is an optical vision camera.~~

The system as claimed in claim 5, wherein the sensing device is an optical vision camera.

8. ~~The system as claimed in any one of the preceding claims, wherein the system is configured to provide a cycle time deduction process control for continuous inspection of the subsequent vehicle.~~

The system as claimed in claim 1, wherein the system is configured to provide a cycle time deduction process control for continuous inspection of the subsequent vehicle.

9. ~~The system as claimed in the preceding claims, further comprising a database server.~~

A vehicle contents inspection method for inspecting a moving vehicle according to the vehicle contents inspection system of claim 1, said method comprising the steps of:

switching on a control unit;

opening a vehicle entry gate, to allow entry of the vehicle;

passing the vehicle through a pair of radiation shielding walls extending from the vehicle entry gate to an exit having a space therebetween that defines a shielding wall radiation zone which includes a main beam zone;

finding said vehicle moving into a shielding wall radiation zone, by a radiation stop sensor;

reaching a main beam zone, by the vehicle;

switching on a radiator when said vehicle reaches the main beam zone;

triggering radiation emission as the radiator is switched on for the emission of a radiation main beam at the main beam zone across the radiation shielding walls;

scanning and inspecting contents within the vehicle as it passes through the main beam zone;

scanning license plate and container number of said vehicle using a vehicle and container optical recognition system;

passing through the main beam zone completely, by the vehicle;

triggering, by the radiation stop sensor, to stop emission of the radiation;

ensuring clearance at the exit using the exit vehicle movement monitoring device; and

exiting the system, by the vehicle;

wherein the method further comprises the steps of

providing scanning comprising X-ray or gamma ray; and

allowing a subsequent vehicle to enter the shielding wall radiation zone after a prior vehicle completely passed through the main beam zone but still remaining within the shielding wall radiation zone, and upon detection of clearance of the exit by the exit vehicle movement monitoring device after the prior vehicle exits the shielding wall radiation zone through the exit, the subsequent vehicle is allowed to enter the main beam zone to begin the scanning process.

10. ~~A method for inspecting contents within a moving vehicle according to the vehicle contents inspection system of Claim 1, comprising the steps of:~~

~~allowing entry of the vehicle through a vehicle entry gate;~~

~~passing the vehicle through a pair of radiation shield walls extending from the vehicle entry gate to an exit having a space therebetween that defines a shield wall radiation zone which includes a main beam zone;~~

~~reaching the main beam zone, by the vehicle;~~

~~triggering, by a sensing device, a radiator to switch on for emission of a~~

~~radiation main beam at the main beam zone across the radiation shield walls towards one or more radiation detection arrays;~~

~~scanning and inspecting contents within the vehicle as it passes through the main beam zone;~~

~~passing through the main beam zone completely, by the vehicle;~~

~~triggering, by the sensing device, the radiator to switch off to stop emission of the radiation main beam;~~

~~ensuring clearance at the exit using the sensing device; and~~

~~exiting the system, by the vehicle;~~

~~wherein the method further comprises the step of allowing a subsequent vehicle to enter the shield wall radiation zone after a prior vehicle completely passed through the main beam zone but still remaining within the shield wall radiation zone, and the step of allowing the subsequent vehicle to enter the main beam zone to begin the scanning process upon detection of clearance of the exit by the sensing device after the prior vehicle exits the shield wall radiation zone through the exit.~~

The method as claimed in claim 9, further comprising the steps of

opening a barrier of the vehicle entry gate;

turning a traffic light of the vehicle entry gate to green;

allowing entry of the vehicle; and

closing the barrier after entry of the vehicle for preventing tailgating of

the subsequent vehicle entering the system.

11. ~~The method as claimed in Claim 10, further comprising the step of providing a cycle time deduction process control for continuous inspection of the subsequent vehicle.~~

The method as claimed in claim 9, further comprising the step of stopping radiation emission during an emergency.

12. ~~The method as claimed in Claim 11, wherein the step of providing a cycle time deduction process control further comprises the steps of~~

~~opening a barrier of the vehicle entry gate;~~

~~turning a traffic light of the vehicle entry gate to green;~~

~~allowing entry of the vehicle; and~~

~~closing the barrier after entry of the vehicle for preventing tailgating of the subsequent vehicle entering the system.~~

The method as claimed in claim 9, further comprising the step of of waiting until traffic is cleared.

13. ~~The method as claimed in claims 11 or 12, wherein the step of providing~~

~~a cycle time deduction process control further comprises the step of switching on a vehicle and container optical recognition system; and capturing a license plate, a container number, or both, of the vehicle using the vehicle and container optical recognition system.~~

The method as claimed in claim 9, further comprising the step of starting a new cycle.

14. ~~The method as claimed in any one of claims 11 to 13, wherein the step of providing a cycle time deduction process control for continuous inspection of the subsequent vehicle further comprises the steps of~~

~~checking if the vehicle is not moving, under a specified speed, or both;~~

~~considering the vehicle to be under an emergency condition; and~~

~~stopping the radiation main beam from being fired towards the radiation detector array instantaneously.~~

The method as claimed in claim 9, further comprising the step of providing a cycle time deduction process control for continuous inspection of the subsequent vehicle.

15. ~~The method as claimed in any one of claims 11 to 14, wherein the step of providing a cycle time deduction process control further comprises the step~~

~~of~~

~~checking an exit traffic condition.~~

~~16. The method as claimed in Claim 15, wherein the step of checking an exit traffic condition further comprises the steps of~~

~~checking if the traffic at the exit is jammed; and~~

~~checking if the traffic at the exit is not jammed.~~

~~17. The method as claimed in Claim 16, wherein the step of checking if the traffic at the exit is not jammed further comprises the steps of~~

~~allowing the subsequent vehicle to enter the main beam zone; and~~

~~restarting a new cycle.~~

~~18. The method as claimed in any one of claims 13 to 17, wherein the vehicle and container optical recognition system is installed along the radiation shielding wall for performing the step of capturing a license plate, a container number, or both, of the vehicle.~~