CLAIMS

The Claims defining the invention are as follows:

1. A system for detecting a phone or mobile device infringement by a vehicle operator actively operating a vehicle, the system comprising:

one or more camera;

one or more sensor for detecting the actively-operated vehicle and triggering the one or more camera to capture a first image of at least a part of the vehicle operator when the actively-operated vehicle reaches an image capture point;

one or more flash for illuminating the vehicle or a part thereof with light at a narrow band when the actively-operated vehicle reaches the image capture point;

wherein at least one of the one or more camera comprises a narrow band filter that lets through only or substantially only the wavelengths of light produced by the one or more flash and eliminates the majority of ambient light and/or light produced by the sun, and wherein the light produced by the one or more flash is able to penetrate a windshield of the actively-operated vehicle;

one or more computer processor for automatically analysing the first image to detect an infringing act; and wherein the automatic analysing comprises:

determining the location of the vehicle operator in the first image;

creating a cropped image, based on the first image, showing only the vehicle operator and the vehicle operator's immediate surrounds;

determining the brightest pixels and the darkest pixels of the cropped image and applying an offset to the pixels of the cropped image to linearly scale the pixels between the brightest pixels and the darkest pixels to yield an enhanced cropped image;

classifying the enhanced cropped image to identify the enhanced cropped image as:

containing illegal phone or mobile device use, or, not containing illegal phone or mobile device use, wherein a confidence factor or threshold is used to determine whether the enhanced cropped image contains illegal phone or mobile device use or does not contain illegal phone or mobile device use.

2. A method for detecting an phone or mobile device infringement by a vehicle operator actively operating a vehicle, the method comprising:

detecting an actively-operated vehicle with one or more sensor and triggering one or more camera to capture a first image of at least a part of the vehicle operator when the actively-operated vehicle reaches an image capture point;

illuminating the one or more vehicle with one or more flash with light at a narrow band when the actively-operated vehicle reaches the image capture point;

wherein at least one of the one or more camera comprises a narrow band filter that lets through only or substantially only the wavelengths of light produced by the one or more flash and eliminates the majority of ambient light and/or light produced by the sun, and wherein the light produced by the one or more flash is able to penetrate a windshield of the actively-operated vehicle;

automatically analysing, using one or more computer processor, the first image to detect an infringing act by:

determining the location of the vehicle operator in the first image;

creating a cropped image, based on the first image, showing only the vehicle operator and the vehicle operator's immediate surrounds;

determining the brightest pixels and the darkest pixels of the cropped image and applying an offset to the pixels of the cropped image to linearly scale the pixels between the brightest pixels and the darkest pixels to yield an enhanced cropped image;

classifying the enhanced cropped image to identify the enhanced cropped image as:

containing illegal phone or mobile device use, or, not containing illegal phone or mobile device use, wherein a confidence factor or threshold is used to determine whether the enhanced cropped image contains illegal phone or mobile device use or does not contain illegal phone or mobile device use;

transmitting the enhanced cropped image, if the enhanced cropped image is identified as containing illegal phone or mobile device use.

3. A computer program product comprising:

a non-transitory computer usable medium and computer readable program code embodied on said non-transitory computer usable medium for detecting a phone or mobile device infringement by a vehicle operator actively operating a vehicle, the computer

readable code which when executed by one or more computer processors of a computer, cause the computer to:

detect the actively-operated vehicle based on input from one or more sensor;

upon trigger one or more camera to capture a first image of at least a part of the vehicle operator;

illuminate the detected vehicle or part thereof with one or more flash with light at a narrow band for capture of the first image;

wherein at least one of the one or more camera comprises a narrow band filter that lets through only the wavelengths of light produced by the one or more flash and eliminates the majority of ambient light and/or light produced by the sun, and wherein the light produced by the one or more flash is able to penetrate a windshield of the actively-operated vehicle;

automatically analyse the first image to detect an infringing act by:

determining the location of the vehicle operator in the first image;

creating a cropped image, based on the first image, showing only the vehicle operator and the vehicle operator's immediate surrounds;

determining the brightest pixels and the darkest pixels of the cropped image and applying an offset to the pixels of the cropped image to linearly scale the pixels between the brightest pixels and the darkest pixels to yield an enhanced cropped image;

classifying the enhanced cropped image to identify the enhanced cropped image as:

containing illegal phone or mobile device use, or, not containing illegal phone or mobile device use, wherein a confidence factor or threshold is used to determine whether the enhanced cropped image contains illegal phone or mobile device use or does not contain illegal phone or mobile device use;

transmit the enhanced cropped image, if the enhanced cropped image is identified as containing illegal phone or mobile device use.

4. The system, method or product of any one of Claims 1 to 3 wherein the one or more camera is at least one or: a 5 to 50 MP; 10 to 45 MP; or 20 to 35 MP camera.

5. The system. method or product of any one of Claims 1 to 4 wherein the one or more camera comprises a global shutter sensor.

6. The system, method or product of any one of Claims 1 to 5 wherein the narrow band filter lets through light having wavelengths between one of: 700 and 1000nm; 750 and 950nm; 800 and 900nm; 820 and 890nm; 830 and 880nm; 850 and 870nm; or 840 and 860nm.

7. The system, method or product of any one of Claims 1 to 6 wherein the one or more filter comprises an infra-red (IR)-blocking filter.

8. The system, method or product of any one of Claims 1 to 7 wherein the one or more flash comprises one or more light source.

9. The system, method or product of any one of the Claims 1 to 8 wherein the one or more flash comprises a tightly controlled wavelength.

10. The system, method or product of any one of Claims 1 to 9 wherein the one or more flash comprises a main flash and a separate offset flash for licence plates.

11. The system, method or product of any one of Claims 1 to 110 wherein a high angle into the vehicle for the one or more camera is used the capture the first image.

12. The system, method or product of any one of Claims 1 to 11 wherein the one or more sensor comprises a radar.

13. The system, method or product of any one of Claims 1 to 12 wherein the first image includes a licence plate of the vehicle.

14. The system, method or product of any one of Claims 1 to 13 wherein the one or more flash comprises one or more capacitor to store charge between flashes.

15. The system, method or product of any one of Claims 1 to 14 wherein the one or more flash is capable of firing 10,000 to 100,000 times per day.

16. The system, method or product of any one of Claims 1 to 15 wherein the one or more computer processor is configured to transmit the enhanced cropped image over a computer or telecommunications network, if the enhanced cropped image is identified as containing illegal phone or mobile device use.

17. The system, method or product of any one of Claims 1 to 16 wherein a phone or mobile device location associated with the enhanced cropped image is transmitted with the enhanced cropped image.

18. The system, method or product of any one of Claims 1 to 17 wherein the one or more computer processor is associated with a neural network configured to at least partially conduct the automatic analysing.