CLAIMS

1. A collision prevention system for lifting machinery including, at least one measurement transceiver mountable on or adjacent the lifting machinery, the measurement transceiver being adapted to transmit a radio signal through an operational area surrounding the lifting machinery, and for measuring reflected radio signals returning from the operational area, the reflected radio signals identifying a position of one or more objects located within the operational area to thereby determine whether or not the detected object(s) within the operational area is within a critical position(s) relative to the lifting machinery, wherein the measurement transceiver is at least mountable on a lifting hook block of the lifting machinery, and wherein the system includes an accelerometer and/or gyro mountable with the measurement transceiver for sensing movement of the said measurement transceiver to thereby offset said movement when identifying the position of the detected object(s).

2. A collision prevention system for lifting machinery according to claim 1, wherein the critical position(s) is when a calculated distance of the detected object(s) positioned within the operational area from the measurement transceiver is below a predetermined value.

3. A collision prevention system for lifting machinery according to claim 1 or 2, wherein the system includes a controller module for controlling transmissions of the or each measurement transceiver, and for receiving position data of the detected object(s).

4. A collision prevention system for lifting machinery according to claim 3, wherein the controller module includes a warning device for providing a warning to an operator of the lifting machinery when the detected object(s) within the operational area is within the critical position(s).

5. A collision prevention system for lifting machinery according to claim 3 or 4,

wherein the controller module automatically intervenes to slow and/or limit movement of the lifting machinery when the detected object(s) within the operational area is within the critical position(s).

6. A collision prevention system for lifting machinery according to any one of the preceding claims, wherein the system differentiates between the detected object(s) by identifying movement of the detected object(s).

7. A collision prevention system for lifting machinery according to any one of the preceding claims, wherein the system further includes an identification device carried by humans authorised to be present within the operational area.

8. A collision prevention system for lifting machinery according to claim 7, wherein the system issues a warning signal to the identification device carried by the human is detected within the operational area that has be determined to be at a said critical position.

9. A collision prevention system for lifting machinery according to any one of the preceding claims, wherein the system identifies humans not carrying a said identification device as being unauthorised to be within the operational area.

10. A collision prevention system for lifting machinery according to claim 9, wherein a warning signal is provided to the operator of the lifting machinery and to other humans carrying an identification device if unauthorised humans are detected.

11. A collision prevention system for lifting machinery according to claim 1, wherein the lifting machinery is a tower crane having a said lifting hook block, and the measurement transceiver is mountable on or adjacent the lifting hook block of the tower crane, the critical position being determined by the distance between the lifting hook block and the detected object(s).

12. A collision prevention system for lifting machinery according to claim 1, wherein the lifting machinery is a mobile crane having a said lifting hook block, and the measurement transceiver is mountable on or adjacent the lifting hook block, and a boom, counterweight and/or front of an operator's cabin of the mobile crane, the critical position being determined by the distance between the lifting hook block, boom, counterweight and/or front of an operator's cabin and the detected object(s).

13. A collision prevention system for lifting machinery according to claim 1, wherein the lifting machinery is a rail mounted crane having a said lifting hook block, and a said measurement transceiver is mountable on or adjacent the lifting hook block, and a boogie of the rail mounted crane, the critical position being determined by the distance between the boogie and/or lifting hook block and the detected object(s).

14. A method of controlling a collision prevention system for lifting machinery as claimed in claim 1, including;

a) requesting the or each measurement transceiver to transmit a radio signal through the operational area;

b) identifying positional data of at least one detected object within the operational area using the or each measurement transceiver measuring radio signals reflected from the detected object(s); and

c) determining an action based on the positional data.

15. A method according to claim 14, wherein the action is to provide a warning signal when the positional data shows the detected object(s) to be in the critical position.

16. A method according claim 15, wherein the warning signal is provided for an operator of the lifting equipment and/or to authorised humans within the operational area.

17. A method according to claim 14, wherein the action is to intervene in the operation of the lifting machinery to thereby slow and/or limit movement of the lifting machinery when the positional data shows the detected object(s) to be in the critical position.