

AIDRIX–Disinfection robot

DESCRIPTION OF THE TECHNOLOGY

The COVID19 pandemic has revealed major deficiencies in the world's health systems in terms of the high rate of infection among health personnel. One of the main causes is direct contact with hospital rooms, which have a high viral load, which makes it essential to have effective, fast and safe disinfection methods for the personnel who carry out the disinfection.

Classical disinfection methods are characterized by slow, manual processes that involve several phases and direct contact of personnel with infected areas.

There are currently automated disinfection systems on the market, but these have certain deficiencies when it comes to disinfecting elements at different heights or they cannot disinfect partially or totally covered or blocked elements. In addition, these systems are based on a single disinfection method.

All these factors show the need to create

more effective automatic systems that allow hospital rooms to be disinfected remotely, ensuring the total elimination of infectious agents in any corner or object present in the room.

Researchers from the University of Valencia (IRTIC) and the General Hospital of Valencia have developed AIDRIX, a disinfection robot that joins two disinfection methods. On the one hand, it has a powerful C-band ultraviolet light lamp (UVC), and on the other, it has a hydrogen peroxide ultrasound nebulization system.

The robot has the ability to recognize the 3D environment in which it is located and be able to carry out disinfections autonomously, moving on its own and basing its decisions according to the scenario in real time. In addition, it implements a series of algorithms to minimize the areas where UVC radiation does not reach and thus achieve maximum disinfection of each type of room.

MARKET APPLICATION SECTORS

Disinfection of most viruses and/or bacteria in hospitals, operating rooms, educational centers, public buildings, cinemas, theaters, nightclubs, meeting rooms or company offices, airports, etc.

TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

Using AIDRIX robot has several advantages over the currently disinfection systems:

- Reduction of the risk of contagion by the personnel in charge of disinfecting contaminated rooms.
- Reduction of the disinfection time of a certain room.
- Objective report at the end of the cleaning of each room with the result of the disinfection and the areas where the disinfection system has not reached.
- Reduces material degradation by limiting UVC light emission time.
- Minimizes non-disinfected areas, as AIDRIX estimates UVC shadow zones.
- Double disinfection (UVC light + nebulization with hydrogen peroxide).
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CURRENT STATE OF DEVELOPMENT

The technology has been validated under real conditions and a prototype is now available.

INTELLECTUAL PROPERTY RIGHTS

The technology is protected through Spanish patent application P202230063, entitled " Sistema y método de desinfección " and priority date 27/01/2022 and by its patent family.

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COLABORATION SOUGHT

- User license agreement.
- Subcontracting agreement with companies and/or institutions.

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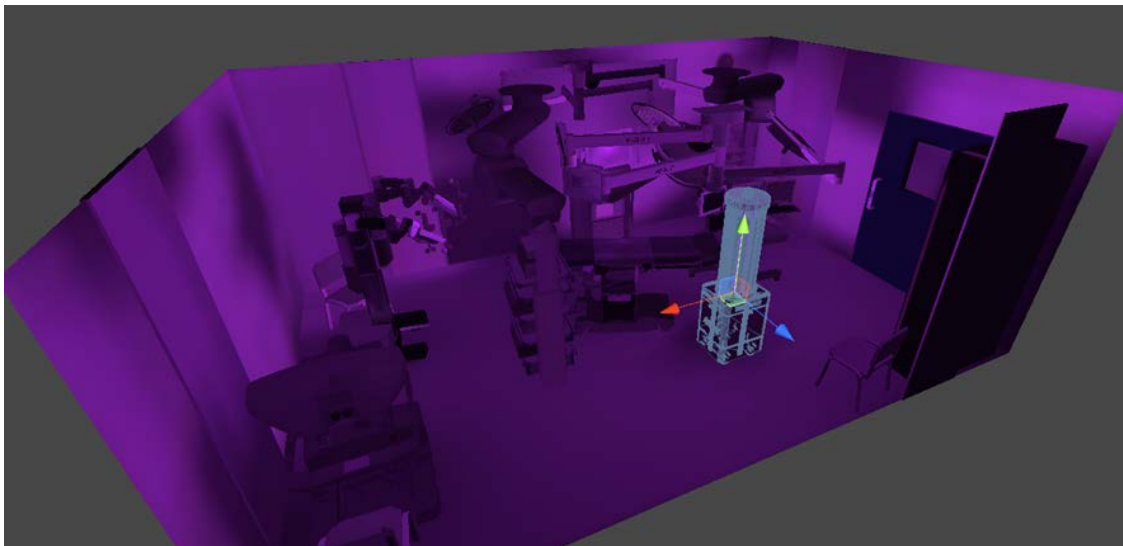


Figure 1: AIDRIX robot movement simulation in an operating room for automated disinfection.

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