



## **PROJECT COMPLETION REPORT**

1. **Project Number** : 8226
2. **Title of the Project** : Digital Sanitization Systems
3. **Funding Agency Name** : TRC
4. **Project Reference Number provided by the Funding Agency:** 8226
5. **Principal Investigator (Name &Address) :** Sarath S Nair  
Dept of Medical Devices Engineering, BMT Wing, SCTIMST
6. **Co-Investigators (Name & Address):**
  - i. Mr Vinodkumar V, Dept of Medical Devices Engineering, BMT Wing, SCTIMST
  - ii. Mr Nagesh D S, Dept of Medical Devices Engineering, BMT Wing, SCTIMST
7. **Implementing Institution** : SCTIMST
8. **Collaborating Institutions** : Nil
9. **Date of Commencement** : 01/04/2020
10. **Duration** : 2 months
11. **Date of Completion** : 31/05/2020
12. **Objectives as approved:**

To develop a Mobile Robot with UV light Technology for sanitize/disinfect ICUs, Wards, Corridors, Public places
13. **Deviation made from original objectives if any, while implementing the project and reasons thereof:**

Nil

**14. Field/Experimental work giving full details of summary of methods adopted, data collected supported by necessary tables, charts, diagrams and photographs :**

An Ultraviolet based Disinfectant Robotic is developed that can hold multiple UV lights with easy navigation to reach to different parts of the hospitals/ public places/ building/ offices and provide ultraviolet disinfection to prevent spread of covid 19 diseases.



The device consists of microcontroller based movable platform which allows the device to move in 360 degrees. A spindle is attached to the base which holds the UV lamp which flashes in regular frequency. It allows the easy replacement of the lamp. The device has both auto and manual mode of operation. In auto mode it can detect the obstruction in the path to change its direction. It also has a mobile application to control its functions.

**15. Detailed analysis of results:**

A prototype of the device is developed and tested for the following operation

1. Manual Movement control
2. Autonomous movement control
3. UV Lamp Triggering

**16. Summary sheet of not more than 2 pages under following heads: (Title, Introduction, Rationale, Objectives, Methodology, Results, Translational Potential)**

Details provided in section 14.

**17. Contributions made towards increasing the state of knowledge in the subject:**

A robotic system for performing autonomous UV disinfection is developed.

**18. Conclusions summarising the achievements and indication of scope for future work:**

An Ultraviolet based Disinfectant Robotic is developed that can hold multiple UV lights with

easy navigation to reach to different parts of the hospitals/ public places/ building/ offices and provide ultraviolet disinfection to prevent spread of covid 19 diseases.

**19. Science and Technology benefits accrued:**

- a. **List of research publications with complete details : 0**
- b. **Manpower trained on the project :**
  - i. **Research Scientists or Research Fellows : 0**
  - ii. **No. of PhD's produced : 0**
  - iii. **Other Technical Personnel trained : 0**
- c. **Patents taken, if any : 0**
- d. **Products developed, if any : 1**

**20. Abstract: (In 300 words for possible publication in ..... Bulletin)**

**a. Background:**

There is a large surge of COVID related illness due to the spread of SARs-COV2 virus which need to reduce at any cost for the betterment of humanity.

**b. Materials:**

Motors, Microcontrollers, switching circuits, obstruction sensors, ir sensors, UV lamps, Power supply, On/off switch, emergency switch, Spindle, Castor wheels

**c. Results: Developed a Ultraviolet Disinfectant Robotic which can be navigated to any regions within hospital, corridors, ICUs, wards, office spaces, buildings or public places.**

**d. Conclusion:**

An Ultraviolet Disinfectant Robotic been developed that can hold multiple UV lights with easy navigation to reach different parts of hospitals/ public places/buildings/ offices and provide ultraviolet disinfection to prevent the spread of covid 19 diseases.

**21. Procurement/Usage of Equipment: Nil**

**a. Details of Equipment:**

Sl. No.	Name of Equipment	Make/ Model	Cost (Rs.)	Date of Installation	Utilisation	Remarks regarding maintenance breakdown

**b. Suggestions for disposal of equipment(s):**

**No equipment purchased**

**Sarath S Nair (30/11/2023)**

**(Name and Signature of PIs with date)**

**Routing:** Signed copy of "Project completion Report" by PI → [root@sctimst.ac.in](mailto:root@sctimst.ac.in), [rpc@sctimst.ac.in](mailto:rpc@sctimst.ac.in)