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A Literature Review on Fabrication of Smart Covid Sanitization Tunnel

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Abstract: This paper presents a sanitation disinfection tunnel and monitoring system. It employs an embedded microcontroller with connectivity for accessing and controlling devices. The proposed system doesn't require a fanatical server PC with reference to similar systems and offers a completely unique communication protocol to watch and control the house environment with more than just switching functionality than just the switching functionality. To demonstrate feasibility and effectiveness of this technique, devices like light switches, power plug, PIR, Ultrasonic or microwave motion sensor are intrigued with the proposed sanitization disinfection tunnel. Therefore this system has been successfully designed and implemented in real time. Internet of things is a revolutionary domain that has the caliber to impact our lives and convey significant changes to the planet. Several lot applications have been envisioned to facilitate data driven and smart application for the user. Smart city and Intelligent Transportation System offer a futuristic vision of smart, secure and safe experience to the top user, and at an equivalent time efficiently manage the sparse resources and optimize the efficiency of city operations. However, outbreaks and pandemics like COVID-19 have revealed limitations of the prevailing developments, therefore, architecture, applications and technology systems got to be developed for swift and timely enforcement of guidelines, rules and government orders to contain such future outbreaks.

Keywords: Sanitizer, Relay, Alcohol, Ultrasonic sensor, COVID

I. INTRODUCTION

Coronavirus disease 2019 (COVID-19), also known as the coronavirus or COVID, is a contagious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The first known case was identified in Wuhan, China, in December 2019. The disease has since spread worldwide, leading to an ongoing pandemic. Symptoms of COVID-19 are variable, but often include fever, cough, headache, fatigue, breathing difficulties, and loss of smell and taste. Symptoms may begin one to fourteen days after exposure to the virus. The smart Disinfection and Sanitization Tunnel is a demonstration of how it has been designed to provide maximum protection to people passing through the tunnel in around 15 seconds. Which can help the community to fight against the COVID-19. The main idea of this project is to make a tunnel that can try and prevent the spread of COVID-19. The disinfection and sanitization tunnel is prepared in order to sanitize people within 15 second from any possible bacteria.

II. WORKING PRINCIPLE

The presented research work discusses a smart epidemic tunnel that can assist an individual in immediate disinfection from COVID-19 infections. The authors have presented a sensor-fusion-based automatic sanitizer tunnel that detects a human using an ultrasonic sensor from the height of 1.5 feet and disinfects him/her using the spread of a sanitizer spray. The presented smart tunnel operates by rechargeable battery and also on electric power supply



Figure No 1.3-Working Of Machine

III. METHODOLOGY

These types Disinfection and Sanitation tunnels are a particularly effective access system they're meant to be placed at the entry and exit points of common gathering areas like: Hospitals, Police Stations, Shopping Malls, Stadiums, Government Offices, Courthouses, Movies Hall, Commercial Areas, Temples etc. When an individual or a gaggle of persons wants to enter common areas, they need to travel through these tunnels for sanitation and cleaning. When within the tunnel, persons are sprayed with mists and vapors of disinfectant medicines. The spray is completed using high-pressure pumps which turn the medicines to atomized micro droplets. The micro droplets of those atomized sprays also can easily penetrate regular clothing material thus ensuring deep sanitization.

IV. LITERATURE REVIEW

Leo Louis et.al [1] proposed the working principle of Arduino and using it as a tool for study and research. In his paper he discussed the working principle of Arduino and its applications. The different types of Arduino boards and their comparison was discussed and tabulated. The programming part was done with Arduino IDE tool and explained with some of the examples like Arduino Satellite (ArduSat), Ardupilot (Ardupilot Mega-APM) and Lily pad Arduino.

Osmah Ibraheem Khalaf et.al [2] proposed a low cost effective wireless protection system using Arduino. He used Temperature sensor as heat sensor and developed a system which will send an email notification to a mobile phone or fire station nearby.

V. CONCLUSION

As per above discussion we conclude that the planning and development of a totally automatic, modular, and portable tunnel that has two chambers and use to disinfect people with high neutralizing efficiency of the COVID-19 virus. Within the chamber, the person is disinfected by the spraying of the ionized mist of an approved disinfectant solution for 20s.

REFERENCES

- [1] Bastola A, Sah R, Rodriguez-Morales AJ, Lal BK, Jha R, Ojha HC, Shrestha B, Chu DKW, Poon LLM, Costello A, et al. The first 2019 novel coronavirus case in Nepal. *Lancet Infect Dis.* 2020;20(3):279–80. [https://doi.org/10.1016/S1473-3099\(20\)30067-0](https://doi.org/10.1016/S1473-3099(20)30067-0).
- [2] [CAS Article PubMed PubMed Central Google Scholar](#). Explained: What Are Disinfection Tunnels And Are They Safe? [Internet]. [cited 2020 Apr 13]. Available from: <https://www.outlookindia.com/website/story/india-news-explained-what-are-disinfection-tunnels-and-are-they-safe/350364>.
- [3] To Fight Coronavirus, Disinfectant Tunnel in China Sprays Industrial Workers World News US News [Internet]. [cited 2020 Apr 13]. Available from: <https://www.usnews.com/news/world/articles/2020-02-12/to-fight-coronavirus-disinfectant-tunnel-in-china-sprays-industrial-workers>.
- [4] Disinfection tunnels and safe cabins introduced at supermarkets The Bulletin [Internet]. [cited 2020 Apr 13]. Available from: <https://www.thebulletin.be/disinfection-tunnels-and-safe-cabins-introduced-supermarkets>.
- [5] Smart Disinfection and Sanitation Tunnel - Hackster.io [Internet]. [cited 2020 Apr 13]. Available from: <https://www.hackster.io/yugn27/smart-disinfection-and-sanitation-tunnel-aefe50>.
- [6] Chinese cities are rolling out disinfectant tunnels and spray trucks to ward off the coronavirus - but experts don't think it will work Business Insider India [Internet]. [cited 2020 Apr 13]. Available from: <https://www.businessinsider.in/science/news/chinese-cities-are-rolling-out-disinfectant-tunnels-and-spray-trucks-to-ward-off-the-coronavirus-160-but-experts-dont-think-it-will-work/articleshow/74305925.cms>.
- [7] Name P. List N: disinfectants for use against SARS-CoV-2 other COVID-19 resources. 10e1;2020. Cleaning and disinfection for households CDC [Internet]. [cited 2020 Apr 13]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html>. Contents lists available at ScienceDirect Public Health journal homepage: www.elsevier.com/locate/puhe Public Health 183 (2020) 48e49

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