ROOM DISINFECTING MANAGEMENT SYSTEM

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INTRODUCTION

Technology runs our lives these days. Smartphones, tablets and computers – we really can't seem to function without them. In a very short amount of time, technology has exploded in the market and now, many people cannot imagine a life without it.

Nowadays, we apply technology in almost everything we do in our lives, we use technology at work, we use it to extract materials, and we use technology for communication, transportation, learning, manufacturing, and creating artifacts, securing data and so much more.

All schools should aim to have students attend school in person, which is how they learn best. This means working with public health officials to get community spread of the virus under control. And then, once a school can reopen for in-person learning, layers of safety measures can help keep students, teachers, and staff safe.

Students without gadgets, and teachers who lack training in technology, pose challenges for the Philippines as virtual classes begin.

Social distancing is for your protection as much as those that may come into contact with places you have been and touched. Social distancing, along with regular hand-washing and good hygiene practices, reduces the odds of people unknowingly spreading and contracting the virus.

It is possible that your immediate social circle may involve another household, such as that of immediate family members. Be sure that everyone under your care and in your immediate social circle avoids unnecessary social contact and maintain a high level of hygiene.

this UT pandemic period, everyone, everything, and everywhere is a suspect. It's important that you clean and disinfect now to avoid contracting the virus. One of the most challenging factors we are facing is how much to disinfect & when should you as a business. The one thing we can tell you for sure is that you need to have a plan in place to disinfect and protect yourself & employees.

Building Disinfecting Management System is a computer-based control system that can help establishments to disinfect rooms effortless and hassle free. Also, today health protocols must be meet even inside the establishment so we added a limiter feature to our device.

Disinfects surfaces without risk of corrosion, commercial production and storage areas without a need for rinsing. Minimal handling costs for disinfecting chemicals.

Today, there is a system developed to control, monitor, and disinfect the area a specific device in a certain

room or Building known as "Building Disinfecting Management System".

Building Disinfecting Management System is applicable that use to manage the certain area. It is a widely accepted serial level protocol due to its ease of use and reliability, which is used to control/manage the status of area.

GENERAL OBJECTIVES

The General Objectives of the study entitled "Building Disinfecting Management System" was to can help establishments to disinfect rooms effortless and hassle free.

Specific Objectives

1. To disinfect the area or room

2. To count the number of people inside the room.

3. To lessen the manpower for manually disinfecting the

4. To limit the number of people in certain room.

5. To monitor the solution inside the container room.

STATEMENT OF THE PROBLEM

The study specifically sought to answer the following:

1. What is the problem encountered in the existing Room Disinfecting Management System?

2. What innovation can be introduced?

3. What are the similarities of the current and proposed project?

4. What is the assessment of the three groups of respondents namely as, Professors, Student

in terms of the following criteria? Is there any significant difference?

a. Functionally

b. Usability

c. Reliability

d. Efficiency and

e. Maintainability

5. What claims can be derived from the innovated project?

METHODOLOGY

The research use the descriptive research method is used in gathering the needed information for this study. This method enables the researchers to interpret the theoretical meaning of the findings and hypothesis development for further studies. Specifically, the researchers utilized a questionnaire type of descriptive research method which enables the researchers to gather information from the respondents without the respondents having any difficulties in answering the questions required for the researchers to gather information regarding the development of the project design of Room Disinfecting Management System.

The survey design was used for this study and administered to a selected sample form from 3 cluster namely: (1) Professors (2) Students, and(3) Community.

The survey involved a questionnaire which sought to obtain data on their opinion and current situation encountered by the faculty members in passing their output. Survey

questions area easier to use to gather information or data needed for the study.

The method of sampling used by the researcher is non- probability sampling as the sampling technique used in the study. The non-probability sampling uses on non-randomized method to draw the sample. Non-probability sampling technique where the samples area gathered in a person that does not give all the individuals in the population equal chances of being selected. Most researcher's area bounded by time, money and workplace and because of these limitations, it is almost impossible to randomly sample the entire population and it is often necessary to employ another sampling technique.

Evaluation

The project was evaluated on the following criteria namely:

- Functionality

- Usability

- Reliability

- Efficiency

- Maintainability

Statistical Treatment

The mean was used as the tool for evaluating the project.

The formula is;

x = (Sigma*X)/N

Where,

Σ, represents the summation

X, represents scores

N, represents number of scores

The Likert scale was used for descriptive ratings.

Table 1: Likert Scale for descriptive ratings.

Numerical Scale	Average Response	Adjective Rating	Verbal interpretation
5	4.50–5.00	Exellent	E
4	3.50–4.49	Very Satisfactory	VS
3	2.50–3.49	Satisfactory	S
2	1.50–2.46	Fair	F
1	1.00–1.49	Poor	P

Equal Variance Not Assumed

When the two independent samples are assumed to be drawn from the populations with the equal variances (i.e., 012022), the test statistic t is computed as:

t= x 1 -x 2 sqrt((x_{1} ^ 2)/n_{1} * (s_{2} ^ 2)/n_{2})

Where:

x ^ - 1 = Mean of the first sample

x ^ - 2 = Mean of the second sample

n * 1 = sample size (i.e., number of observations) of first

sample

n * 2 = Sample size (i.e., number of observations) of second

sample

s * 1 = Standard deviation of first sample

s * 2 = Standard deviation of second

sample

The calculated t value is then compared to the critical t value from the t distribution table with degree of freedom,

$$df= (s_{1}^{2})/s_{2} + s2^{2} 1 s 1 -1 (pi7 s 1)^{2} + T s 2 -1 (pi7 s 2)^{2}$$

And chosen confidence level if the calculated t value > critical t value, then we reject the null hypothesis.

Note that this form of the independent samples T test statistics does not assume equal variances. This is why both the denominator of the test statistics and the degree of freedom of the critical value of t are different than the equal variances form of the test statistics.

DATA GATHERING PROCEDURE

In developing this project the following steps were followed:

1. Title proposal "Room Disinfecting Management System".

2. Gathered data through patent research about the existing and how to make it more efficient.

3. Presentation of the proposal title.

4. Designing the system's Graphic User Interface

5. After creating the system, they performed several assessment to test the accuracy of the system in terms of automation.

6. Identified what materials were needed in creating the project

7. After conceptualizing and identifying the resources, developing the project's architecture and interfaces.

8. Transferring the codes at the microprocessor.

9. Gathering concepts on how to start and needed to implement the project.

10. Designing the structure and circuitry for our hardware.

11. Testing the connection of the system to the hardware.

12. Subsequently, found some errors in their system and fixed it for better performance of the system.

13. Final defense of the study

14. Writing the final report of the thesis.

SUMMARY OF FINDINGS

This chapter shows the findings resulting from this study.

SOP 1. Who is the beneficiary of this project?

This device will let users (Professors, Teacher, Students, Medical Personnel or etc.) to use a Room Disinfecting Management System that have ability to operate with the use of disinfecting the room and other occupied space that need to disinfect in this time of pandemic.

SOP 2. How can it help in schools, offices and other establishments?

Many people will benefit to this project that aims to help the occupied offices and hospital, even the school can be benefit for using the Room Disinfecting Management System. It is easier to use and less contact for disinfecting the room that many people are going in or out in that certain

room. The RDMS, helps you to be caution in this time of pandemic. We are still battling for this pandemic. We need to disinfect and be careful in everyday life and helps and support the medical frontlines to be safe and not to be infected by the virus.

SOP 3. Is the device can still be used in the places where electricity is not available?

Sadly it is no, because this system is electric operated and it has a monitor and a sensor. The disinfection connected to this system. Maybe we can use the generator that may suitable value for this project.

SOP 4. What is the assessment of the three groups of respondents namely; Students, Professors, and Community in terms of the following criteria?

Is there any significant difference? The following criteria were being assessed by the two groups of respondents both students, professors and practitioners.

A. Summary on Functionalities

Table 2: ILLUSTRATION ON FUNCTIONALITY ASSESSMENT

1.1 Functional

Completeness.

Degree to which the set of function covers 4.00 E 4.20 E 4.00 HE 4.10 HE 1
all the specified tasks and user Objectives.

1.2 Functional

Correctness.

Degree to which the System provides the 3.40 HE 4.10 HE 3.90 HE 3.80 HE 2 correctness of results with the needed degree of precision

1.3 Functional Appropriateness.

Degree to which the functions facilitate the 3.20 G 4.10 E 3.80 HE 3.70 G 3

accomplishment of specified tasks and objectives Overall Weighted 3.53 E 4.70 E 3.09 HE 3.84 HE Mean

Legend:

Excellent

(E) 4.2 – 5

Highly Extent

(HE) 3.4 – 4.19

Good

(G) 2.6 – 3.39

Fair

(F) 1.8 – 2.59

Poor

(P) 1 – 1.79

As shown in Table 2, on the assessment of functionality Students and Professional rated all of the

indicators as "Excellent", but the Community rated all of the indicators as "Very Good" with an overall weighted mean value of 3.53, 4.70, and 3.84 respectively. They ranked these indicators as follows: rank 1, "Functional Completeness. Degree to which the set of function covers all the specified tasks and user objectives" with a composite weighted mean of 4.10; rank 2, "Functional Correctness. Degree to which the System provides the correctness of results with the needed degree of precision" with a composite weighted mean of 3.80. And rank 3, "Functional appropriateness. Degree to which the functions facilitate the accomplishment of specified tasks and objectives" with a composite weighted mean of 3.70; It is implied that the RDMS in terms functionality accomplishes all specified tasks and objectives with the needed degree of precision.

Conclusion

This chapter presents the summary of findings; the conclusions arrived based on the findings and recommendations offered.

This was taken with the main objectives developing Room Disinfecting Management System. Specifically this study aims to achieve and improve the following;

To design and innovate the existing Room Disinfecting Management System.

. Provide effective and reliable Room Disinfecting Management System by the use of Serial protocol Modbus RTU with the help of RS485 that will transmit task over serial lines between devices.

• To lessen the cost of the DDC (Direct Digital Control) devices bought outside the country but at the same time more reliable and effective.

• To design a Room Disinfecting Management System that are user friendly and easy to use.

Based on the findings of the study, the following conclusion are drawn:

a. According to the evaluation results of the Functionality of the system, the degree to which the system set of functional correctness, completeness and appropriateness were interpreted as "Excellent" by the respondent, which means that the functionality of Room Disinfecting Management System in terms functionality accomplishes all specified tasks and objectives with the needed degree of precision. user

b. According to the evaluation results of the Usability of the system, the degree to which the respondents valuated the set of operability, accessibility, and User Aesthetics as "Excellent". which means that the usability of Room Disinfecting Management System had an aspect that make it easy to operate and control while enabling pleasing and satisfying interaction for the user with wide range of characteristics and capabilities to

achieve specified context.

c. According to the evaluation, the respondents evaluate result of

the Reliability of the system as "Excellent". Which means that the reliability of Room Disinfecting Management System has meets the needs for reliability under normal operation and that the system is functioning and accessible when required to be used and with a degree of tolerance to faults.

d. According to the evaluation, result of the Efficiency of the system is evaluated as "Excellent" by the respondents. The system covered the entire specified task and the user objective. With an efficient response and processing rates when performing its function, which means the Room Disinfecting Management System has excellent processing time using the maximum limits of the system, and resources when performing functions to meet requirements. e. According to the evaluated result of the Maintainability of the system, the degree to which the sets modularity, reusability and modifiability were interpreted as "Excellent" by the respondents. Which means that the maintainability of Room Disinfecting Management System is modifiable, and can be used in other systems due to its modularity.