

# Smart Medicine Box for COVID-19

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## I. RATIONAL & GAP ANALYSIS (LITERATURE)

1. Publisher- International Journal of Innovative Science And Research Technology - 2020

Paper Title- Design of Automatic Hand Sanitizer With Temperature sensing.

Author- Mr. Abhinandan Sarkar.

Workdone- Automatic Hand Sanitizer With Temperature Sensing Design Prototype has Been Made.

2. Publisher- IEEE Paper-2020

Paper Title-Self - Activating Sanitizer With Battery Imposed System For Cleansing Hand.

Author- Mr. M. M. Sriari.

Workdone- Idea About Automatic Hand Wash Sanitizer. It Controlled Sanitizer Liquid Flow By the RC Timer Delay Controller & Reducer. It Works Like Normal Contactless Automatic Machine

3. Publisher- Future Computing and Infomatics Journal 2018

Paper Title- Improving Health Care Using Smart Pill Box for Medicine.

Author- Mr. D. S. Abdul Minaam.

Workdone- Smart Pill Box is programmable that enable medical caretakers or clients to determine the pill amount & timing to take a pill.

4. Publisher - IEEE International Multidisciplinary Conference on Engineering Technology 2018

Paper Title- Smart Medicine Box System.

Author- Mr. Hiba Zeidan.

Workdone- Setting the schedule of medical intake, alarming the user of the number of remaining pills, generating alarm whenever the patient does not take the required no. of pills.

## II. OBJECTIVE

The main objective of this project is to design and implement automatic smart medicine that includes features such as automatic hand sanitizer, IR sensor, relay driver, LCD display, servomotor, Temperature Sensor based on Microcontroller. With the given stated aspects , the design has been done for easy installation of the hardware every possible places across the globe.

1. To design a touch less hand sanitizer dispenser.
2. Installation of pump to outlet sanitizer dispenser.
3. Installation of temperature sensor.

4. Installation of LCD to display the sensed the High temperature on LM35.
5. Synchronizing the sensor with Arduino Microcontroller.
6. To design the Relay for streamer to selective keys an outlet which gives out steam with particular time.
7. To design the medicine dispenser, with the help of servo motor (L293D) which medicine can be taken at certain time.
8. Whatever the process running like steaming , medicine will work with help of Buzzer to alert , will beep and alert you that process is completed.
9. To design and implement a low power consumption system.
10. Proper safety measure has been taken to overcome any kind of fault in consideration of over-voltage, short circuit , excessive current flow etc.

## III. HYPOTHESIS

As stated earlier the device circuit is made in a software and simulated accordingly. While prototyping the hardware some power distribution to each module can be a hindrance, to overcome the problem, relays must be installed to drive the spray pumps/submersible pumps, so that the sensors, lcd and other minute modules get enough power supply from the inbuilt 5 V and 3.3 V ports of the Arduino microcontroller. It can be manufactured in any household at a very low cost and can be installed anywhere be it in offices, educational institutes , public transport , regular shops etc.

To draw a concluding line to the project it can be said that in a war with an invisible enemy the device is a

## IV. RESEARCH METHODOGY

In this project, we are using IR sensor to detect the presence of a hand, when it detect of a hand below the 10 cm, it will trigger and then when we give 5 volt supply from microcontroller to relay drive, it become energies and sanitizer will automatically come in our hand. In this system microcontroller is used to control all the attached devices across the external electronics equipment which are: IR sensor, relay Driver, servo motor, LCD display. The power supply

provide voltage and current for effective components of the system. And the pump through sanitizer dispenser directly from 12volt supply microcontroller, relay drive, servo motor are fed with regulated DC power supply which is 5 volt respectively.

**This system consists of Hardware parts include :-**

1. ATMEGA328C
2. IR sensor
3. 12 DC Power Supply and 5v DC Regulator
4. LCD display
5. Relay drive
6. Servo motor
7. Temperature Sensor
8. Buzzer and indicating LED

**V. PRELIMINARY WORK/SURVAY**

This pandemic has had an indelible effect on consumer behavior, notably shifting priorities towards health and safety. That’s why the is releasing a series of research notes with pragmati guidance on how organizations can take action on the things that matter in the wake of COVID-19.

**VI. EXPECTED OUTCOME**

In enforcing this hand sanitizing action before letting people in to where ever they intend to enter as some people are not willing to collaborate, some look at it as a wastage of their time and also sometimes security guards can let some people in without sanitizing and without check body temperature just because they are their friends or family or relatives, which is very risky. Therefore, the smart hand sanitizer is stationed at the entrance door and in such a way that it controls it. That is to say, when a person(s) wants to access the entrance door, they must first sanitizer their hands or else the door will remain locked. With smart hand sanitizer dispenser, if you are employee first put Your RFID tag near RFID scanner after that put hand under smart sanitizer then the sanitizer outlet dropping some amount into your hands at that time thermal temp sensor automatically check body temperature, If temperature is normal it commands to the micro-controller to turn on the servo motor and it will open the entrance door and allow a person to enter and lighting up a green LED and in the other case if temperature is high so it will indicate RED led and beep a buzzer.

**VII. BENEFIT TO THE SOCIETY**

1. It is much safer and more recommended due to its touch less.
- 2.Transformation of lifestyle of individuals resulting in increased healthcare expenditure and better health measures;

this factor is expected to drive the growth of the market.

3. Sanitizing hands is a must to prevent COVID-19. For factories, offices, hospitals, shops are Increasing concerns regarding health safety and precautionary measures for wellness. This factor is expected to drive the market growth.
4. The main advantage of these device seems to be that they are more trusted, quicker and easier to use.
5. Smart medicine dispenser could solve such problems by informing and alerting the patients to take the appropriate.

**VIII. COST BENEFIT ANALYSIS**

SR NO.	COMPONENTS	QUANTITY	COST
1	Arduino	1	700
2	External Body	1	350
3	12V Pump	2	320
4	Steamer	1	300
5	Acrylic Plate	1	280
6	LCD Display	1	250
7	Servo Motor	2	250
8	IR Sensor	3	180
9	Temperature Sensor	1	150
10	Motor Driver	1	25
11	5V Relay	1	20
12	Buzzer	1	20
13	Votage Regulator	1	15
		<b>TOTAL -</b>	<b>3790</b>

**IX. FUTURE SCOPE**

At this time we target Offices, Factories, Companies employees but in the upcoming version we add the functionality for a Visitor of any Shops, hotels, Banks, hospitals etc. so this machine will work for both employee of organization and Visitor also.

**X. LIMITATION**

- 1.Very useful in Covid-19 centre before taking swab to sanitizer hand and check temperature and also useful to give stream in emergency cases
- 2.Every public and private places where people use there hand
3. Every human who suffer from lungs diseases such asthma COPD ,infection like influenza, pneumonia need

**XI. REFERENCES**

1. <https://www.webmd.com/lung/coronavirus>
2. [https://en.m.wikipedia.org/wiki/Severe\\_acute\\_respiratory\\_syndrome\\_coronavirus\\_2](https://en.m.wikipedia.org/wiki/Severe_acute_respiratory_syndrome_coronavirus_2)
3. <https://www.comsoc.org/publications/magazines/ieee-internet-things-magazine/cfp/sma>