

<b>FORM 1</b> <b>THE PATENTS ACT, 1970</b> <b>(39 of 1970)</b> <b>&amp;</b> <b>THE PATENTS RULES, 2003</b> <b>APPLICATION FOR GRANT OF PATENT</b> <b>[See sections 7,54 &amp; 135 and rule 20(1)]</b>	<b>(FOR OFFICE USE ONLY)</b>  <b>Application No.: .....</b> <b>Filing Date: .....</b> <b>Amount of Fee Paid: .....</b> <b>CBR No.: .....</b> <b>Signature: .....</b>
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**1. APPLICANT(S):**

Sr.No.	Name	Nationality	Address	Country	State
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700160

**3. TITLE OF THE INVENTION: ISOAP: NO-TOUCH I.O.T SOAP DISPENSER SYSTEM**

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**5. PRIORITY PARTICULARS OF THE APPLICATION(S) FILED IN CONVENTION COUNTRY:**

Sr.No.	Country	Application Number	Filing Date	Name of the Applicant	Title of the Invention
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**6. PARTICULARS FOR FILING PATENT COOPERATION TREATY (PCT) NATIONAL PHASE APPLICATION:**

International Application Number	International Filing Date as Allotted by the Receiving Office
PCT//	01/01/1900 00:00:00

**7. PARTICULARS FOR FILING DIVISIONAL APPLICATION**

Original (first) Application Number	Date of Filing of Original (first) Application
	01/01/1900 00:00:00

**8. PARTICULARS FOR FILING PATENT OF ADDITION:**

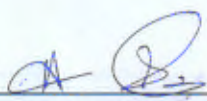
Main Application / Patent Number:	Date of Filing of Main Application
	01/01/1900 00:00:00

**9. DECLARATIONS:****(i) Declaration by the inventor(s)**

I/We ,Abhinav,Subhalaxmi Chakraborty, is/are the true & first inventor(s) for this invention and declare that the applicant(s) herein is/are my/our assignee or legal representative.

(a) Date: 11.12.2020





(c) Name(s): Abhinav, Subhalaxmi Chakraborty

**(ii) Declaration by the applicant(s) in the convention country**

I/We, the applicant(s) in the convention country declare that the applicant(s) herein is/are my/our assignee or legal representative.

(a) Date: -----

(b) Signature(s) : .....

(c) Name(s) of the singnatory: University of Engineering and Management Kolkata, University of Engineering and Management Kolkata, University of Engineering and Management Kolkata

**(iii) Declaration by the applicant(s)**


- I am/We are, in the possession of the above mentioned invention.
- There is no lawful ground of objection to the grant of the Patent to me/us.
- I am/We are, the assignee or legal representative to true first inventors.

**10. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION:**

Sr.	Document Description	FileName
1	COMPLETE SPECIFICATION	image and figures.pdf
2	DRAWINGS	Figures.pdf

I/We hereby declare that to the best of my/our knowledge, information and belief the fact and matters stated hereing are correct and I/We request that a patent may be granted to me/us for the said invention.

Dated this(Final Payment Date): 11.12.2020

Signature: 

Name: Satyajit Chakrabarti

To The Controller of Patents

The Patent office at KOLKATA

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# FORM 18

THE PATENT ACT, 1970  
(39 of 1970)  
&  
THE PATENTS RULES, 2003

## REQUEST/EXPRESS REQUEST FOR EXAMINATION OF APPLICATION FOR PATENT

[See section 11B and rules 20(4) (ii),24B (1) (i)]

### 1. APPLICANT(S)/OTHER INTERESTED PERSON(S):

- (a) Name :1. University of Engineering and Management Kolkata
- (b) Nationality :1 .India
- (c) Address :1 .University Area, Plot, Street Number 03, Action Area III, B/5, Newtown, Kolkata, West Bengal 700160
- (d) Date Of Publication Under Section 11A :29/07/2022 00:00:00

### 2. STATEMENT IN CASE OF REQUEST FOR EXAMINATION MADE BY THE APPLICANT(S)

I/We University of Engineering and Management Kolkata hereby request that my/our application for patent invention number 202131003539 filed on 27 Jan 2021 for the titled ISOAP: NO-TOUCH I.O.T SOAP DISPENSER SYSTEM shall be examined under section 12 and 13 of the Act.

### 4. ADDRESS FOR SERVICE

University Area, Plot, Street Number 03, Action Area III, B/5, Newtown, Kolkata, West Bengal 700160

Dated this(Final Payment Date) 05/08/2022

Signature  
Name of the Signatory

To,  
The Controller of Patents,  
The Patent Office  
At Kolkata

A. Chatterjee

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## **ISOAP: NO-TOUCH I.O.T SOAP DISPENSER SYSTEM**

### **FIELD OF INVENTION**

The present invention is related to the new advanced I.O.T soap dispenser system which will keep people safe from the Contagious diseases like corona virus here users will not need to touch the soap dispenser which will make this system highly hygienic and using the internet amount of liquid soap can be monitored via a mobile app.

### **BACKGROUND OF INVENTION**

In our everyday life soap are very important to keep us clean. Soaps are important as it keeps us safe from many diseases like diarrhea, cholera, pneumonia and a few kinds of mental sickness, etc. In the beginning, soap bars are used but it was unhygienic as everyone touches the same soap. So liquid soap and soap dispensers came into action but still, everyone needs to touch the top of the soap dispenser which is still unhygienic and presently amount of liquid soap present in soap dispensers are measured and refilled manually but this system will connect the soap dispenser with internet and real-time monitoring of soap dispensers can be done. Here one infrared sensor is used to detect the hand of the user and when a user just brings his hand close to the infrared sensor, one servo will be activated. This servo motor is connected with the top of the soap dispenser which will drop a certain amount of liquid soap when it will be activated. In this way, without touching any surface liquid soap can be used with full hygiene. For monitoring we will use the reservoir will be made of translucent plastic and at different levels (say 5) one LDR (Light Dependent Resistor) will be present and at the neck of the reservoir one led with downward focus will be present. When liquid soap crosses each level / LDR then LDR will sense some amount of light and it will send the data to a microcontroller and the microcontroller will convert the data into a percentage and upload it to a web server from where the amount of liquid soap can be monitored frequently. Led at the top of the reservoir will glow at ever

5minutes for 5 seconds and at the same time, new data will be recorded and uploaded to the server. On the server-side, one android application is connected with it for continuous monitoring and authorities will get the information through the app any time as well as they will get the notifications automatically when liquid soap level is at 50%, 25%, 20%, and 10%. many soap dispensers can be connected to a server and all can be monitored from a single app.

### **OBJECTS OF THE INVENTION**

It is the primary object of the invention to disclose a nodemcu(ESP8266) based no-touch I.O.T soap the dispenser machine.

### **SUMMARY OF THE INVENTION**

To meet the objects of the invention, It is disclosed herein a nodemcu(ESP8266) based no-touch I.O.T soap the dispenser machine comprising: a NodeMcu(ESP8266) microcontroller programming board; IR (infrared) sensor; Servo motor; LDR's (light dependent resistors );lm7805 voltage regulator to give constant 5v supply to system 1 k ohm resistors; led; here IR (infrared) sensor is used for the detect hand of the user and accordingly servo motor will work.LDR's (light dependent resistors ) are used to get level of liquid soap inside dispenser when led light will be on at ever five minutes for 10 seconds. One nodemcu(ESP8266) is used to get data from LDR's and convert it into a percentage and upload it to the server and at the same time, it is used to operate servo motor after sensing hand through IR (infrared) sensor.

### **BRIEF DESCRIPTION OF THE FIGURES**

Fig.1: Represents the block diagram of the proposed system.

Fig.2: Represents the Flow Chart.

Fig.3: Represents the circuit diagram of the proposed system.

## **DETAILED DESCRIPTION OF THE INVENTION**

The main objective for this advanced I.O.T soap dispenser is to increase hygiene and keep every human away from any kind of disease which spreads by touching like coronavirus. This system will also help in maintaining proper sanitization by giving track of soap present in soap dispensers. This is more useful in Hospitals, research facilities and places where lots of people work together or people deal with medical issues and the probability of the spread of any infection is more.

### **Constructional Features:**

- ❖ Fix servo motor and IR (infrared) sensor on the body of soap dispenser accordingly.
- ❖ Connect power supply from +5v to +12v to the lm7805 (voltage regulator).
- ❖ Connect the output of lm7805(voltage regulator) to one end of all LDR's and Vin pin of nodemcu(ESP8266).
- ❖ Connect 1k resistance to one end of all LDR's and short all 1k resistor, the ground of nodemcu(ESP8266) and ground of lm7805.
- ❖ Connect one wire in between resistance and LDR's and connect it to a digital pin (D0, D1, D2, D3, and D4) of nodemcu(ESP8266).
- ❖ Connect led light positive pin to pin D6 of nodemcu.
- ❖ Connect IR(infrared) sensor out the pin to pin D5 of nodemcu
- ❖ Connect servo motor signal in pin with pin D7 of nodemcu.
- ❖ Upload code from Arduino ide to nodemcu board.
- ❖ Install the app for monitoring of different soap dispensers.
- ❖ Now when a hand is detected by the IR sensor it will drop a fixed amount of soap in hands.
- ❖ At every 10 minutes data will be updated on the server and monitored by the app.

### **PROPOSED HARDWARE DESIGN :**

- ❖ Nodemcu(ESP8266)

- ❖ SG90 9g Servo motor
- ❖ Five LDR's (light dependent resistor)
- ❖ Five resistance of 1k ohm
- ❖ lm7805 voltage regulator
- ❖ Two capacitors Of 0.33 uF
- ❖ IR(infrared) sensor
- ❖ Breadboard
- ❖ Connecting wires
- ❖ 12v power adaptor
- ❖ USB to Mini USB male to make cable

#### **SOFTWARE :**

- ❖ Arduino IDE
- ❖ Soap dispenser monitoring Android application

#### **ADVANTAGES :**

- ❖ It will allow the use of soap dispenser without touching.
- ❖ It will increase hygiene and decrease the chance of spreading any diseases.
- ❖ It can be used in hospitals and research facilities to give high-end health care benefits.

#### **LIMITATIONS :**

- ❖ It will always need electricity for proper working.
- ❖ It will always need internet connectivity for proper monitoring.
- ❖ Electronics must be kept in a waterproof condition.

#### **Industrial Applications and commercialization :**

- ❖ It can be used in hospitals, research facilities, and hotels to demotivate the spread of any kind of diseases and infections.



- ❖ It can be used in public toilets to increase hygiene and keep them all safe from infections and Contagious diseases.
- ❖ It can be used in industries where lots of people work together to keep them safe from each other's bacteria and reduce infections.

**We Claim:**

- 1) A nodemcu (ESP8266) based no-touch I.O.T soap dispenser system comprising: a nodemcu (ESP8266) board that uploads data on a server; IR sensor; LDR's and Servo motor.
- 2) The system as claimed in claim 1 wherein, the infrared sensor is used to detect the object/hand of the user and then servo motor will be activated which is connected to the top of the soap dispenser and drop 1 drop of soap on users hand.
- 3) The system as claimed in claim 1 wherein, 5 light dependent resistors are placed outside of dispenser translucent body at different levels and vertical one led is placed on the neck of the dispenser and when there is a decrease in soap level light-dependent resistors will sense the light accordingly and send this data to nodemcu(ESP8266) which uploads the data on the server by converting it to percentage.
- 4) An android based application that is connected to the same server from which soap dispensers are connected to show the percentage of the soap left in the dispenser.

## **ABSTRACT**

### **ISOAP: NO-TOUCH I.O.T SOAP DISPENSER SYSTEM**

The present invention is related to the new advanced I.O.T soap dispenser system which will keep people safe from the contagious diseases like corona virus. This new type of soap dispenser is having an IR sensor and one servo motor. when someone will bring his hand near IR sensor, the servo motor will be activated and one drop of soap will drop on the hand of a user and there will be 5 LDR's to detect the level of liquid soap present inside the dispenser and this data will be published on a server regularly . and can be monitored by an android app. many soap dispensers can be connected with one server and can be monitored by a single app. this system can be implemented on places where a huge number of people uses the same soap dispenser like public toilets, hospitals, hotels, etc.

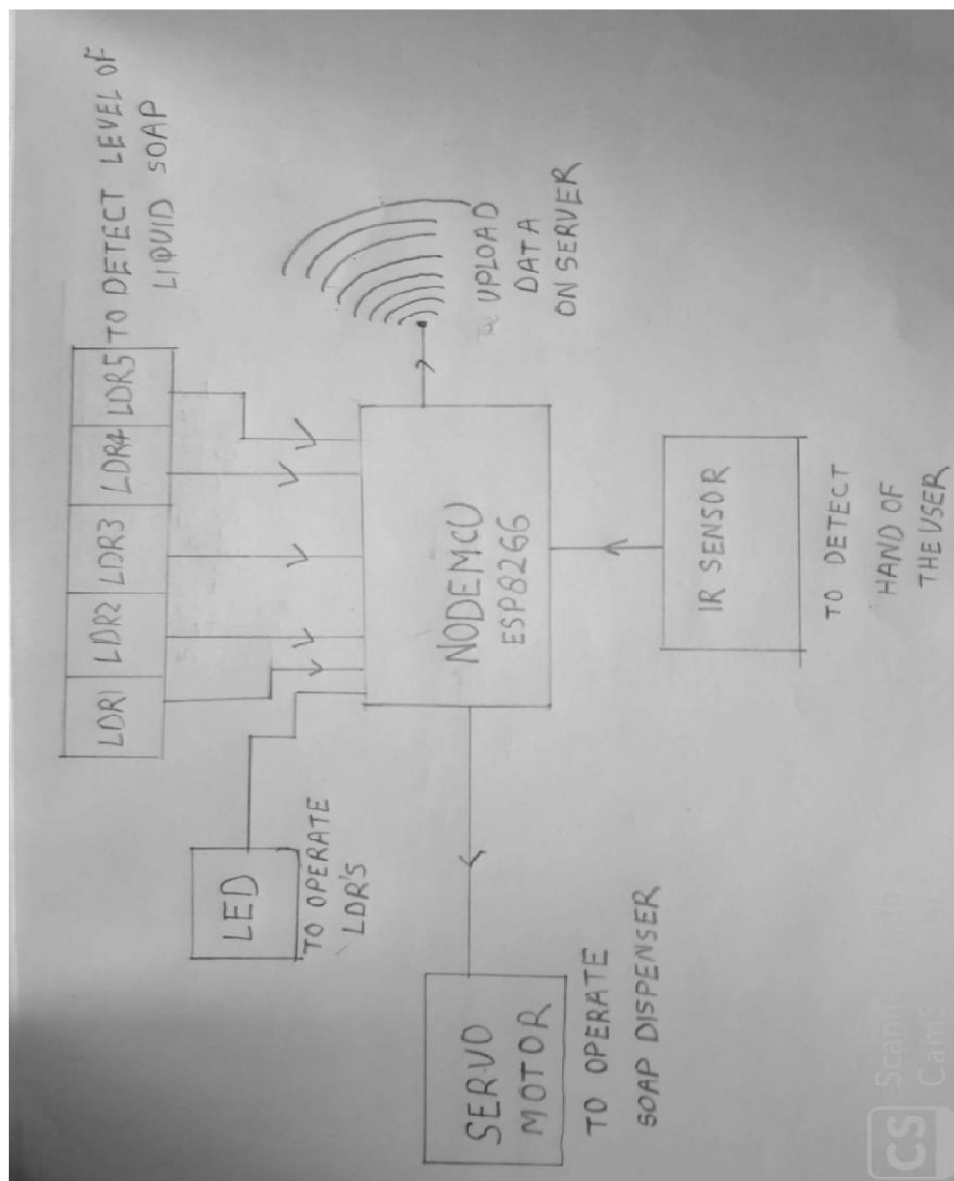


Fig. 1



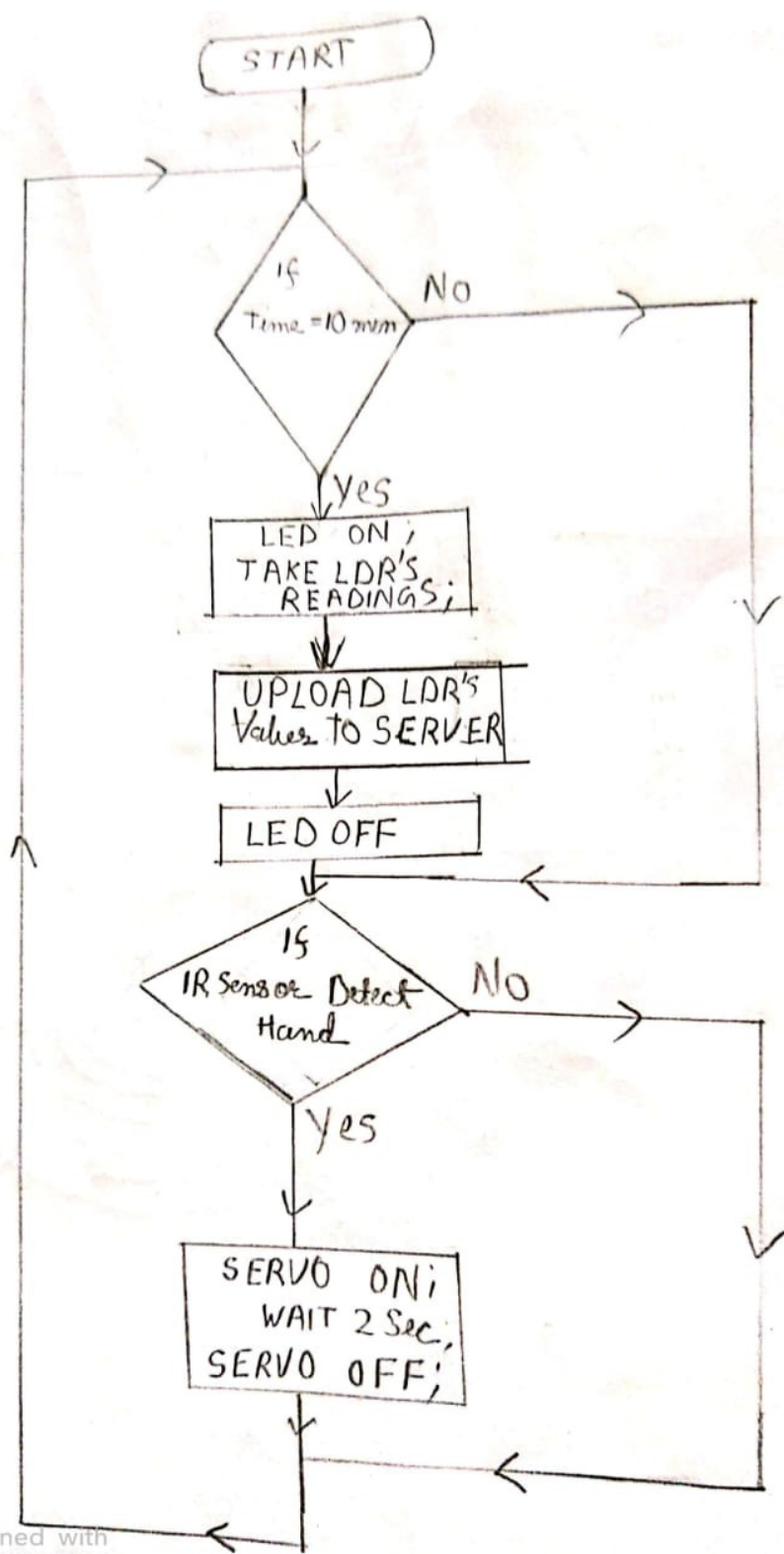


Fig. 2

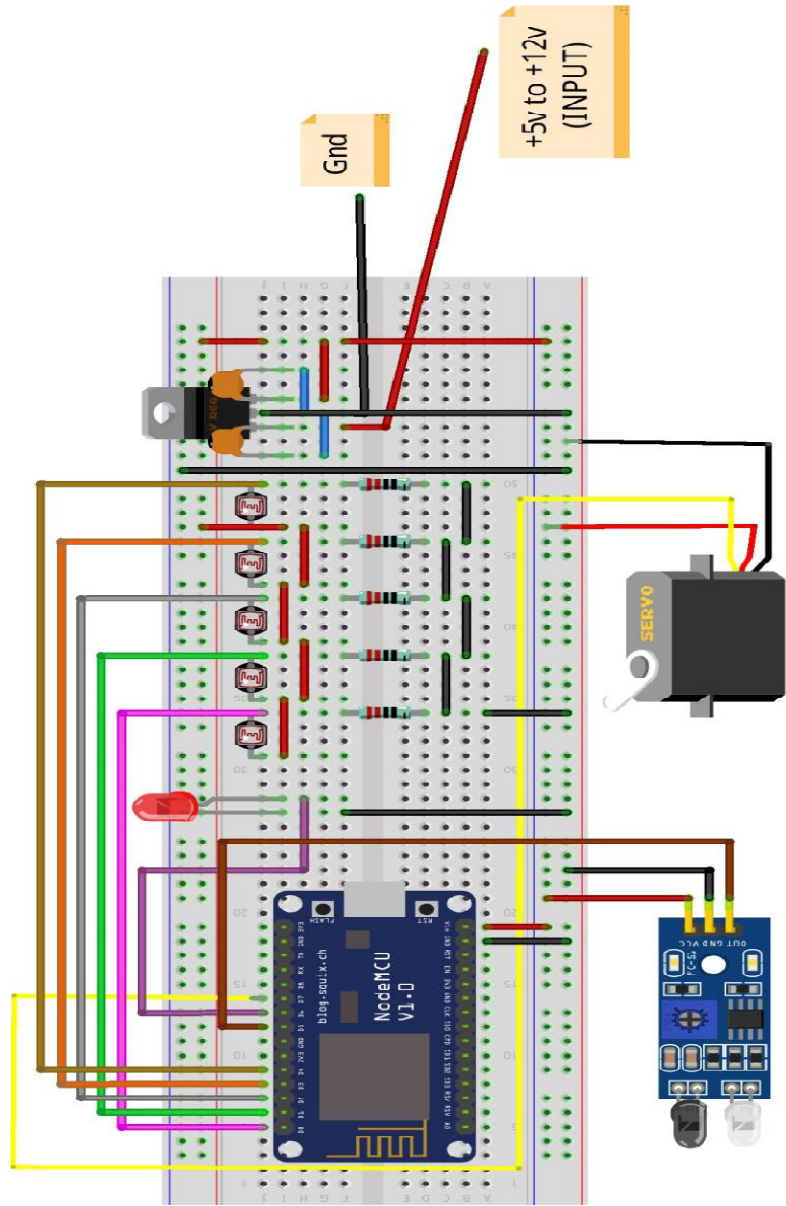


Fig. 3