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Smart Cigarette Box to Eradicate the Habit of Smoking

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***Abstract*— The Smart Cigarette Box uses modern technology to eradicate the use of cigarettes. The Box has a timer in it to control the outlet of the cigarettes. Over the long run we can use this setup to completely eradicate the problem of smoking in people. It also features an emergency button, which initially offers a tablet to the individual prior to an emergent consumption of the cigarette. If it doesn't help, then the actual cigarette is offered. This technology will help people to stop the habit of smoking based on the individual's urgency. It can also be used to control the daily consumption. The core idea is to provide the person with a cigarette after fixed interval, which can be extended with the succession of days, thus ultimately helping in prevention of oral cancer. The buzzer is meant to provide a notification for the person that he can have a cigarette now. The led shows the time left(approximation). The design is small and portable , which is meant to be kept in the pocket of the user . Further a small battery with a micro-USB is kept for charging purpose. This device can easily last up to 2 – 3 days on a single charge.**

Keywords—Smartcase;timers;arduino-power-mangement.

I. INTRODUCTION

In our day to day life with everyday being more stressful, humans are attracted to faster ways of relaxation, narcotics being essentially available and repeatable are accepted by most of the community, but these narcotics have adverse effect on the health on an individual over a longer period of time, the dosage of these narcotics decide the lifespan of the individual. We have seen many individuals do really want to get rid of these habitual intakes of narcotics and want to have a life worth living, so we came up with an idea of designing a smart case, which allows the person to change the course of his living standards and slowly completely eradicate the use of these narcotics. The idea here is simple yet it can have a great impact over the life of the people who are prisoners of narcotics.

II. PROBLEM

In today's world for every individual its necessary for them to keep a check on their health and their habits. Heath of an individual is highly affected by the habits of the individual; smoking being an addictive problem can cause lot of problem in human's health. There is as such no way to eradicate this problem without proper medical therapy or rehabilitation.

III. SOLUTION

The self-healing approach is the best solution. With the use of a controlled mechanism to handle the amount of cigarettes taken by the individual we can make a self-controlling mechanism that allows the person to control his urge to smoke and can learn the ability to have a control over him. the method we came up with is a smart case. A smart approach to eradicate this problem with person's conscious intact.

IV.MECHANISM OVERVIEW

The entire setup is arranged with reference to the diagram. Once the setup is made ready the electronics are programmed and the circuit is made to run on ATMEGA328 Arduino nano microcontroller. Two servo motors are also running from the Arduino's PWM Pin .

A. Setting up the servo motor

The motors being an essential part of the project, precise yet small motors were required for prototyping, the case having enough space to fit in a small sized servo allows us to handle the flow very well. The motors being linked to the microcontroller are having high precision for the operation.

The motors running on from a simple code allows us to make changes if required. The orientation and position of the servo is all tested via a test code running on the Arduino first.

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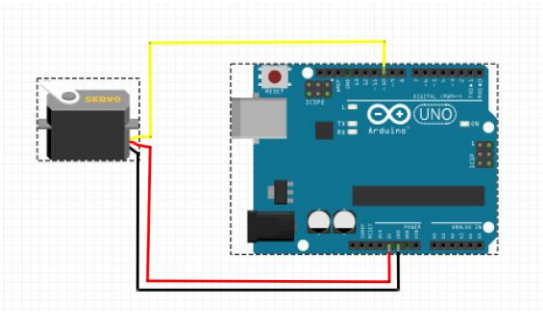

Fig. 1 Setting up the Servo.

B. Working with Arduino Ide

1)Launch

The software is designed to compile and burn the code onto an open source platform known as Arduino. The code that we used is written in C++.

Fig. 2 Launching Arduino Ide

2)Providing necessary outputs

The respective output in our case are the two servo motor. Both of them require the necessary PWM Ports for running. The buzzer is connected to a digital out pin to indicate the time after which a person can take out a cigarette. Time left is displayed on the LED Status bar which shows the timers cycle , the LED's are connected to the digital pins of the Arduino the ports are assigned as the following code

```
1   int led = 9;
2   int led1 = 9;
3   int led2 = 9;
4   int led3 = 9;
5
```

Fig. 3 Setting up output pins

3) Providing necessary timmer

Since we are using a microcontroller this means we have great control over the use of the inbuilt timers .

```
1
2   void setup()
3   {
4     pinMode(13, OUTPUT);
5     digitalWrite(pin, HIGH);
6     delay(10 * 60 * 1000);
7     digitalWrite(pin, LOW);
8   }
```

Fig. 4 Basic Timer For 10 minutes delay

```
1
2   void setup()
3   {
4     pinMode(13, OUTPUT);
5     digitalWrite(pin, HIGH);
6     delay(360 * 60 * 1000);
7     digitalWrite(pin, LOW);
8   }
```

Fig. 5 timer for 6 hour delay

The above code shows the code for the timer circuit. The timer is basically a periodic delay in our case which is linked to the LED system to show how much time is leftover.

Note : The delay function can also be mapped to a RTC Module For simplicity Once the above procedures are completed the prototype is ready in terms of electronics and coding.

C. Logical Layout of the system

The system is running multipe timmers at a time so we are basically using a hard codded code to follow up every time for the user , the code is deigned to help us with the desired output settings and values when needed , the code also helps use to eradicate the need to multiple microcontrollers linked together.

1) The main timer

The main timer is a continuous loop which follows for a continuous cycle , the loop runs for 6hrs initially and then triggers off the servo motor to open. Arduino runs on timer which is based on microseconds hence if we want to run the system we needed to provide a very long loop. To

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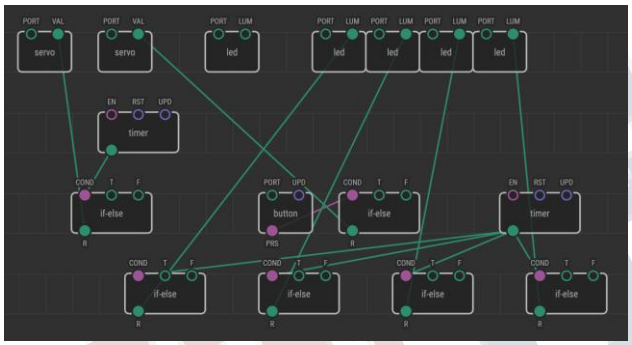
increase the battery efficiency we can further remove the led of the Arduino.

.2) Displaying the time duration

The time duration is time duration was important as it allows the user to get into the need of the box. The display section is covered by the simplicity of the led outputs , further an LED bar graph module can also be used to display even more detailed layout of the led , hence we use if else conditions for the ease of output mechanism .

3)Multiple timers and conditions

The case is fitted with many different electronic modules so in order to have a control over all the electronics and output motors the layout can be explained as follows



D.Implementing the design

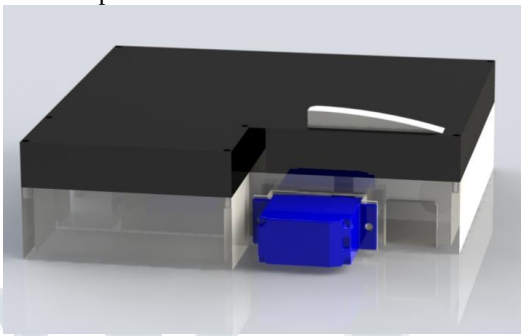
With the objective to eradicate smoking it becomes necessary to design the box effectively such that the electronic components are placed properly and is portable. In order to do that the design was built in SOLIDWORKS'17.

1)Working on SOLIDWORKS'17

SolidWorks is a solid modeling computer-aided design and computer-aided engineering computer program that runs on Microsoft Windows. In our project SolidWorks helps us to design the Smart Box which requires to meet the necessary requirements, such as the handy design, the inlet and outlet of the Nicotine gum and the cigarettes. The motor placement and shaft positioning is analysed to block the passage of the cigarettes to meet the goals set by the individual.

2)Designing

The 2D sketch of the design-outline is constructed initially. The 2D sketch is extruded to build a 3D design. Necessary inlets and outlets for the nicotine gum and cigarretes is extruded from the 3D design.The 9g mini servo is placed at the two outlets for controlled supply of the gums and cigarretes. The final design is rendered to showcase the product.



V.CONCLUSION

In this paper, the process to eradicate smoking by using a Smart Cigarette Box is discussed. Smoking as a habit can only be cured with self-restrain over a period of time. With the use of a controlled mechanism to handle the amount of cigarettes taken by the individual we can make a self-controlling mechanism that allows the person to control his urge to smoke and can learn the ability to reduce the number of cigarettes over a period of time .The Smart Box is a key product for individuals looking forward to quit/control smoking to prevent oral cancer.

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