

Practical No: 7

Title: IoT based Web Controlled Home Automation  
using Raspberry Pi.

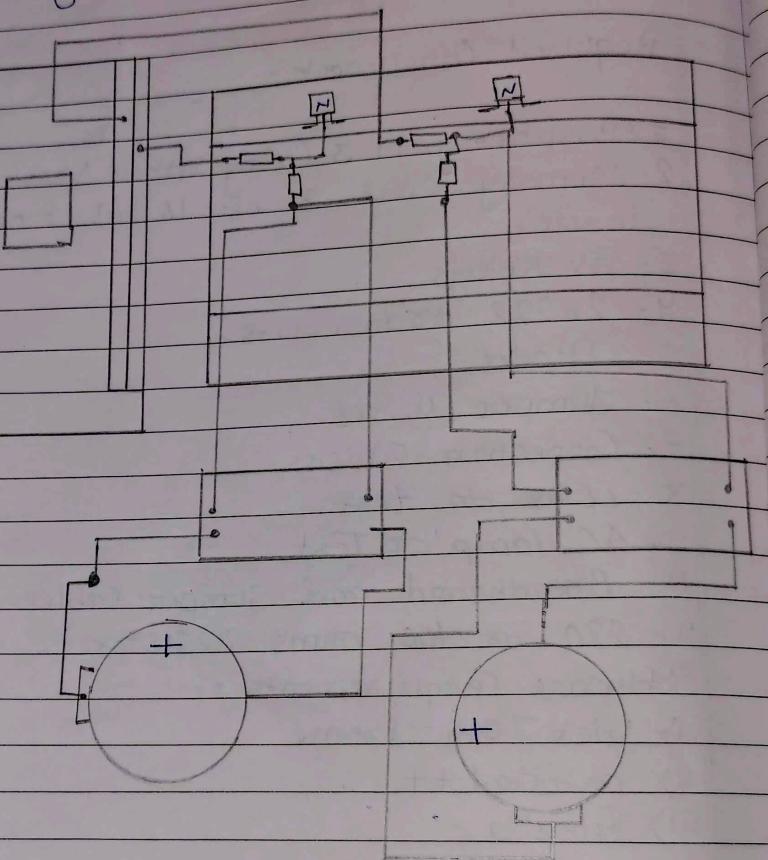
Required Components:

1. Raspberry Pi 3 (Any other Version will be nice)
2. Memory card 8 or 16 GB running Raspbian Jessie.
3. 5v Relays
4. 2n222 Transistors
5. Diodes
6. Jumper wires
7. Connection Blocks
8. LEDs to test
9. AC lamp to Test
10. Breadboard and Jumper cables.
11. 220 or 100 ohms Resistors.

Software Requirements:

- i) Web IoT Pi Frame
- ii) notepad ++
- iii) Filezilla

Circuit Diagram :



The battery reps the main supply while X marks the applicance to be controlled with orange color.

Procedure :

To update  
and then ;

Sudo apt -  
Sudo apt -  
Sudo zeboo

With this  
make sure

Cd ~

Wget to  
forge Page

Wget http://192.168.1.100  
WebIOPi - c

When down  
go into the

tar xvzf  
cd WebIOPi

Then we  
WebIOPi us  
Sudo ./setup

Procedure :

To update the raspberry pi below commands and then reboot the RPi :

Sudo apt-get update  
 Sudo apt-get upgrade  
 Sudo reboot

With this done, install the WebIOPi framework.  
 Make sure you are in home directory using:

Cd ~

Wget to get the file from their source forge. Page :-

Wget <http://SourceForge.net/Projects/webiopi/files/>  
 WebIOPi - 0.7.1 - tar.gz.

When download is done, extract the file and go into the directory.

tar xvzf WebIOPi-0.7.1.tar.gz  
 cd WebIOPi-0.7.1/

Then we can run the setup installation for the WebIOPi using:  
 Sudo ./setup.sh

The JavaScript  
piece

Reboot your Pi  
Sudo reboot

### Test WebIOPi Installation

Run the command :  
sudo webiopi -d -c /etc/webiopi/config

The web browser of your computer connected to the Raspberry Pi to <http://raspberrypi.local:8000>. The system will prompt you for username and password.

Building the web application for Raspberry Pi Home Automation

Make sure you are in home directory using  
then create the folder, go into the  
Created folder and create html folder  
in the directory.

```
cd ~
mkdir webapp
cd webapp
mkdir html.
```

Create a folder for script, css, and img  
inside the html folder :

```
3,
Content,
button
23, "R
Content
```

### The JavaScript Code :

The first piece of code we will write in this of JavaScript, is a simple script that communicate with the webIOPi service.

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I Config
  I or connected
    I raspberryPi
      I will pump
        I board.

  I Raspberry
    I category using
      I the
        I mnl folder
          I Content. append(button);
            I button = webIOPi();
              I button
                I "Relay 3");
                  I Content. append(button);
                    I button = webIOPi();
                      I button
                        I "Relay 4");
                          I Content. append(button);
                            I Content. append(button);
                              I Content. append(button);
                                I Content. append(button);
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```

```

<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8"/>
        <title>Smart Home</title>
        <script type="text/javascript" src="/webapi/SmartHome.js">
        <link rel="stylesheet" href="style.css" type="text/css"/>
    </head>
    <body>
        <h1>Smart Home</h1>
        <div>
            <h2>Temperature Control</h2>
            <input type="button" value="Turn On Air Conditioner" />
            <input type="button" value="Turn Off Air Conditioner" />
            <input type="button" value="Set Temperature" />
        </div>
        <h2>Lighting Control</h2>
        <input type="button" value="Turn On Light" />
        <input type="button" value="Turn Off Light" />
        <input type="button" value="Set Brightness" />
        <h2>Security System</h2>
        <input type="button" value="Arm Security System" />
        <input type="button" value="Disarm Security System" />
        <input type="button" value="Check Camera Feed" />
    </body>
</html>

```

The CSS code:

```

body {
    background-color: #FFFFFF;
    background-image: url('smart-home.png');
    background-repeat: no-repeat;
    background-position: center;
    background-size: cover;
}

button {
    display: block;
    position: relative;
    margin: 10px;
    padding: 0 10px;
    text-align: center;
    width: 130px;
    height: 40px;
    border-radius: 20px;
}

HTML code:
The HTML code pulls everything together
→ JavaScript and the style sheet.

```

DATE:

DATE:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD  
HTML 4-01 Transitional//EN"  
"http://www.w3.org/TR/html4/  
loose.dtd">  
<html>  
<head>  
<meta http-equiv="Content-Type"  
content="text/html"; charset=UTF-8>  
<meta name="mobile-web-app-  
Capable" Content="yes">  
<meta name="viewport" content="  
height=device-height, width=device-  
width, user-scalable=no"/>  
<title> Smart Home </title>  
<script type="text/javascript"  
src="/webapi.js"></script>  
<script type="text/javascript"  
src="/Script/smarthome.js"></script>  
<Link rel="stylesheet" type="text/  
css" href="/Styles/smarthome.css">  
<Link rel="shortcut icon" sizes=  
"196x196" href="/img/smart.png"/>  
</head>  
<body>  
<div id="content" align="center">  
</div>  
<p align="center">Push button<br/>  
receive bacon </p>  
</body> </html>
```

## Practical No: 8

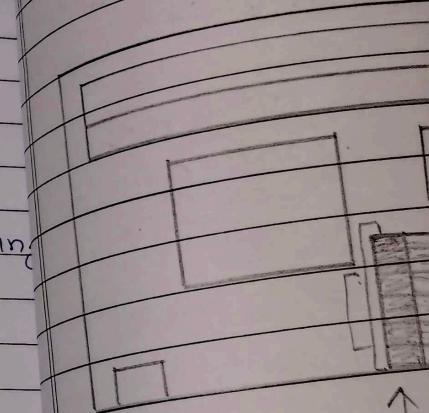
THE: Pi Camera Mod

Raspberry Pi using

Requirements:

- ① Pi Camera Mod
- ② Raspberry Pi.

Circuit diagram:



Attach

The Server Status can be checked using  
sudo /etc/init.d/webapp status.

It can be stopped from running using:  
sudo /etc/init.d/webapi-stop

To setup WebIOPI to run at boot, use;  
sudo update-rc.d webioapi defaults

If you want to reverse and stop it from  
running at boot, use;  
sudo update-rc.d webioapi remove.

Procedure:

Connect Pi Ca  
Pi board SI

Now, we can  
and Videos