SMART MIRROR

A Advance Operating System Project Submitted

By

Name	ID
MD TALAT IRAM	17-34042-1
BORHAN UDDIN	17-34678-2
ISHFIAQUE AHMED	17-35236-2

Under the Supervision of

ARIFUR RAHMAN

LECTURER

Department of Computer Science

Faculty of Science and Information Technology

American International University-Bangladesh

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SMART MIRROR

PROBLEM:

The Smart Mirror implemented as a personalized digital device equipped with peripherals such as Raspberry PI, LED Monitor covered with a sheet of reflective one way mirror provides one of the most basic common amenities such as weather of the city, latest updates of news and headlines and local time corresponding to the location. Magic Mirror is essentially a webpage that runs on a web server housed inside your Raspberry Pi. It displays tons of cool information and can even be used to create your very own smart mirror.

HARDWARE:

1. MicroSD card reader
2. Raspberry pi (In this implement we use Raspberry pi 2B)
3. Raspberry pi power supply, 2A
4. MicroSD card, 16/32 GB
5. HDMI cable
6. USB mouse
7. USB keyboard
8. Monitor
9. Wi-fi dongle

IMPLEMENTATION:

First, download the stretch image of pi, etcher (for flash raspbian stretch to your SD card). Then put your micro SD card into your computer. After opening Etcher, select the Raspbian disk image, your SD card, and click Flash. After Etcher finishes running, you're good to go. Unmount the SD card from your computer and insert it into your Pi. Connect your keyboard, mouse, wi-fi dongle, HDMI cable and, lastly the Pi's power cable. Connect your wireless network. Set your location, language then reboot.

On your Pi, navigate to Menu > Accessories > Terminal.

Type the following and press enter:

```
ifconfig
```

On newer versions of Raspbian SSH is disabled by default. On your Pi, navigate to Preferences > Raspberry Pi Configuration > Interfaces and enable it there. After enabling SSH, open Terminal (Mac) or Command Prompt (Windows). Type the following command and press enter:

```
ssh pi@your_pis_ip_address(192.168.*.*).
```

If you see an authenticity of host warning, type yes and press enter.

Update your pi

```
sudo apt-get update
```

Then

sudo apt-get upgrade –yes.

Install the Interface:

bash –c "$(curl -sL https://raw.githubusercontent.com/MichMich/MagicMirror/master/installers/raspberry.sh)"

When prompted whether you want to use pm2 for auto starting of your Magic Mirror, select "yes" by typing y and pressing enter. Then

cd ~/MagicMirror && DISPLAY=:0 npm start .

Install Node.js latest version

bash <(curl -sL https://raw.githubusercontent.com/node-red/linux-installers/master/deb/update-nodejs-and-nodered)

Then install NPM

sudo npm install npm@latest -g

Then install Production Process Manager [PM2]

sudo npm install –g pm2

Now we will tell Magic Mirror to start on system boot. While connected to your Pi, run the following command:

pm2 startup

That command will output another command for you to run. Run that command. It may vary for your system, but for me it was:

sudo env PATH=$PATH:/usr/bin /usr/lib/node_modules/pm2/bin/pm2 startup systemd -u pi --hp /home/pi

Then run that command

pm2 save

Next, create a startup shell script:

nano mm.sh

Add the following to that file, save, and exit:

cd ~/MagicMirror

DISPLAY=:0 npm start

Make sure the script is executable:

chmod +x mm.sh

Next, start MagicMirror and force it to start on boot:

pm2 start mm.sh

Rotate the display to portrait mode if your mirror isn't landscape:

sudo nano /boot/config.txt

Add the following line to the file:

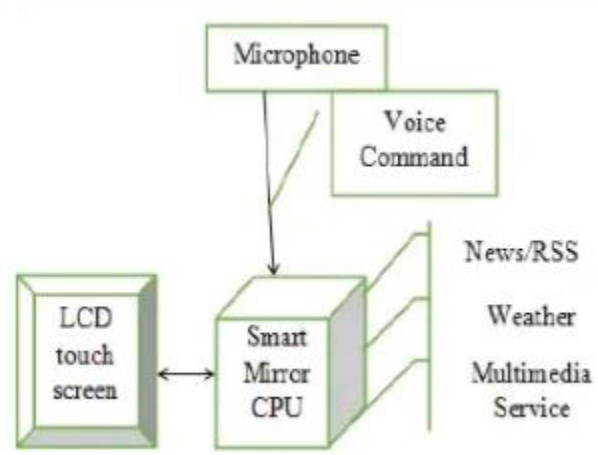
display_rotate=1

Then save and exit.

Finally, reboot your Pi:

sudo reboot

CIRCUIT DIAGRAM:



CONCLUSIONS:

The Smart Mirror that is used here makes our lives easier. The highlight of this smart mirror is to use the mirror in a smart way and efficient way. Voice command can be altered in future for further implementation of making the smart mirror function efficiently and smartly. Voice command and the Raspbian component can be alone taken out and be fixed to any other devices to make it more interactive and smarter instead.

NOTE: File Manager instantly closes when opened

Reinstalling pcmanfm:

sudo apt-get install --reinstall pcmanfm

For updating time, calendar, weather and news module:

Open the file manager application

/home/pi/MagicMirror/config

Open the file config.js then you can see

language: "en",

timeFormat: 24,

units: "metric",

update it

language: "en",

timeFormat: 12,

units: "imperial",

go in calendar module

change the header " International Holidays"

change url: "https://www.calendarlabs.com/ical-calendar/holidays/us-holidays-76/ "

go in current weather module

location: "DHAKA"

locationID: "1185241"

appid: "d4e923379b0de950134fe833aec61b34"

same in weatherforecast module

then in newsfeed module

title: "About Bangladesh"

url: "http://www.bangladesh.com/blog/rss/"

REFERENCE:

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3. https://www.magicmirrorcentral.com/complete-raspberry-pi-magic-mirror-tutorial/
4. https://github.com/MichMich/MagicMirror