

# Pocket Laptop

V.V.Ramana Rao<sup>1</sup>, K.Kishan Kumar<sup>2</sup>, B.Thanuja<sup>3</sup>

<sup>1</sup>Department of Electronics and Communication, St Martin's Engineering College,

<sup>2</sup>Department of Electronics and Communication, CMR Technical Campus,

<sup>3</sup>Department of Electronics and Communication, Mallareddy Institute of Engineering and Technology Sciences.

**ABSTRACT:** Mini laptop is a very useful for students and also different software working like MS-Office, VLC, Mozilla fire fox, Libber CAD, Arduino IDE, Liber Office etc for mini laptop power is provided by 5600mAh battery part. Once fully charged the mini laptop runs for above 2hrs. Mini laptop is firstly connected by to joint with raspberry pi 3. Then take 7 inch display and joint with the other end of display adaptor. raspbianos imager 16GB memory card inside slot of memory card of raspberry pi 3. The recommendation of the S.D card depends on the operating system we install. We us 16GB micro SD card which is class 10(this cards are faster to boot and perform read and write operation). Then connect 5600mAh power supply to raspberrypi 3. Then connect speaker to raspberry pi 3. Then connect all this parts to plastic box.

**Keywords:** Raspberry Pi 3, Raspbian OS, 7 inch LCD screen with LCD adapter, mini Bluetooth USB keyboard

## Introduction

Basically, Pocket laptop is easily affordable and portable [1]. This is light in weight which makes ideal for users who would want to carry them around in a bag or hand for long durations [2]. Pocket laptop provides most input features like keyboard, USB ports and touch pad [3]. People who use pocket laptops can change the software according to their choice and prepare on their own selves. Professionals working in field far away from office can easily carry this [4]. Engineers with business methodologies are the greatest support to our society. The advancements in technologies drive their thoughts and speculates to achieve various goals in fields of science. Arduino has been used as a platform to work for a long time [5]. But with the dispatch of Raspberry pi, a credit card size low-price affordable computer, Arduino is no longer used in application platform. Raspberry pi platform is being used widely from the past few years as it provides easy use support

and documentation. It is readily available to all the end users. From simple educational to smart application projects, Raspberry Pi has proved its significance in the development of applications spreading out in various fields.

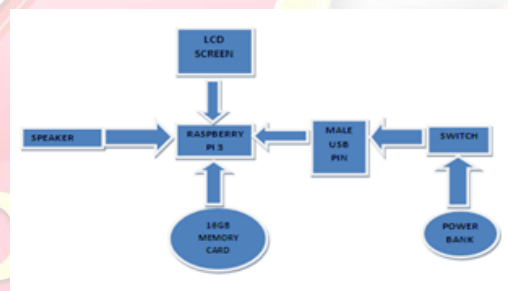
## EXISTING SYSTEM:

Already, laptops are in use in present day life. The design of the laptop places the keyboard, screen, and internal components into a small, portable case. Another popular feature of the laptop is that it can be used almost anywhere

## PROPOSED SYSTEM:

In this project we propose pocket laptop in which we can use any type of software according to the need and can easily portable, affordable by anyone

## BLOCKDIAGRAM



**Fig I :**Block diagram of the Pocket Laptop

## SYSTEMDESIGN

### Hardware System Design:

#### Raspberry Piboard:

Raspberry Pi board is a miniaturized fascinated computer having ample processing speed and size not bigger than credit card [6]. Incredible things can be done by using it. Firstly, to work with raspberry pi, we need a list of things to get desired operation and functioning.



**Figure 1: Raspberry Pi computer Model B+**

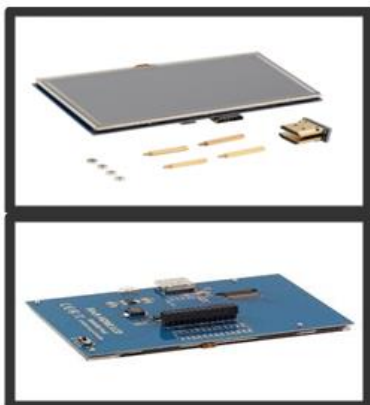
The Model B+ is the most popular updated version of the Pi, with an enhanced functionality. But it uses bit more power to feed the processor [7]. The Model B has received a stealthy update after it was released by adding some more RAM.

But the Raspberry Pi Foundation has released third version of the Model B called the B+. Difference exists in the arrangement of components on the pi board. Sd card is sized to Micro sd along with the removal of the video outport. Four usb ports are now available compared to two on model [8]

All the input and output pins are placed along the sides of the pi to make workspace for project. 40 GPIO pins are now accessible while preserving the same layout as previous version. Same pin configuration is reserved which comes in handy in implementing old projects which were on old pi models. Nearest form factor is achieved as all the connections are along broad edge. Two more clock signals are available along with three extra serial peripheral [8]

**B.7-INCH LCD SCREEN WITH LCD ADAPTER:**

It is a flat-panel display. LCDs are available to display arbitrary images. LCDs are used in a wide range of applications, including LCD televisions, computer monitors etc. LCD stands for “Liquid-crystal display [9].



**Figure 2: LCD Screen with adapter**

**C. BLUETOOTH KEYBOARD:**

It is a keyboard that connects and communicates with its device via Bluetooth protocol. It is also known as wireless keyboard. These devices are used with such portable devices as smart phones and tablets [10].



**Figure 3: BLUETOOTH KEYBOARD**

**D. BATTERY MODULE:**

It is used to put energy into secondary batteries [11]. The charging protocol depends upon size and type of battery charged. They are best for Arduino, DIY kits, power banks



**Figure 4: BATTERY MODULE**

**E. LI-CD BATTERIES:**

For rechargeable cells, the term anode (or negative electrode) designates the electrode where oxidation is taking place during the discharge cycle; the other electrode is the cathode (or positive electrode). During the charge cycle, the positive electrode becomes the anode and the negative electrode becomes the cathode. For most lithium-ion cells, the lithium-oxide electrode is the positive electrode; for titanate lithium-ion cells (LTO), the lithium-oxide electrode is the negative electrode.



Figure 5: LI-CD BATTERIES

**Additional Hardware utilized Compatible to Raspberry:**

For the project use of Raspberry Pi is not enough. For input and connectivity some other devices are required.

1. WifiAdapter
2. SDcard
3. Monitor
4. HDMI to VGAconverter
5. Mouse and Keyboard

**Software System Design:**

**RaspbianOS:**

Raspbian Jessie version is used in this project. It is based on Debianlinux and different versions of os are named from toy story film characters. This Os is fully revised for the raspberry Pi’s hardware. Modifications were made to enhance system processes performance. It runs LXDE (Lightweight X11 Desktop Environment) as the desktop environment. Upgrading to raspbianjessie from rasbian wheezy will add a considerable amount of changes and improvements to desktop user interface.

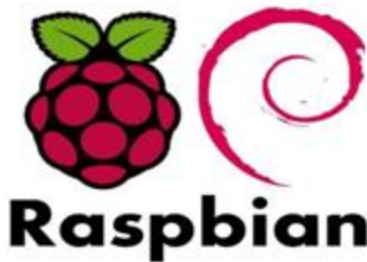


Figure 6: Raspbian OS

**IMPLEMENTATION:**

First Raspbianos is downloaded and in burnt in wing32diskmanager. The obtained output is copied into sd card

using card reader.thissd card is inserted into raspberry pi 3which is attached with 7 inch LCD display with adaptor. Now power is supplied using battery module and li-cd batteries.

Pi python programming:

GPIO library:

“sudo apt-get install python-rpi. gpio”

I2C library :

“sudo apt-get install i2c-tools”

The figure 7 shows the installation of RASPIAN OS tools



Figure 7: Raspbian OS installed

Installation of python-smbus module: “sudo apt-get installpython-smbus”



Figure 8: Python smbus installed

Connecting LCD SCREEN: After connecting accelerometer, run i2cdetect command to check the connection.

```

pi@raspberrypi:~/aws-iot $ sudo i2cdetect -y 1
 0  1  2  3  4  5  6  7  8  9  a  b  c  d  e  f
00: -- -- -- -- -- -- -- -- -- -- -- -- -- --
10: -- -- -- -- -- -- -- -- -- -- -- -- -- --
20: -- -- -- -- -- -- -- -- -- -- -- -- -- --
30: -- -- -- -- -- -- -- -- -- -- -- -- -- --
40: -- -- -- -- -- -- -- -- -- -- -- -- -- --
50: -- -- -- 53 -- -- -- -- -- -- -- -- -- --
60: -- -- -- -- -- -- -- -- -- -- -- -- -- --
70: -- -- -- -- -- -- -- -- -- -- -- -- -- --

```

**Figure 9:** After interfacing with LCD SCREEN if the screen is connected correctly, it is detected at the 53 port of the i2c bus as shown in above figure

#### OTHER APPLICATIONS:

Pocket laptop can be used in order to complete office work, school work and to take down the notes which can replace books and reduce the burden of students. One can make their own laptop with the software they want.

#### RESULTS:



**Figure 9:** Pocket Laptop was implemented by lcdscreen, raspberry pi 3 and blue tooth mini

#### REFERENCES:

- [1] "Embedded System Based Air Pollution Detection in Vehicles" S. Arun, V. Siva Krishna, J.L Mazher Iqbal in International Journal of Emerging Technologies in Computational and Applied Sciences.
- [2] Yamada, K. and M. Soga, A compact integrated visual motion sensor for ITS applications. Intelligent Transportation Systems, IEEE Transactions on, 2003.
- [3] AzrinaAbd Aziz, Y. Ahmet S,ekercioglu, Paul Fitzpatrick, and MiloshIvanovich, "A Survey on Distributed Topology ControlTechniques for Extending the Lifetime of Battery Powered Wireless Sensor Networks", IEEEcommunications surveys& tutorials, VOL. 15, NO. 1, FIRST QUARTER 2013
- [4] Sandborn, P.A.M. and P. Abshire. 2D motion sensor with programmable feature extraction. in Circuits and Systems (ISCA S), 2013 IEEE International Symposium on. 2013. [3] Kamnik, R., S. Stegel, and M. MuniH. Design and Calibration of Three Axial Inertial Motion Sensor. in Power Electronics and Motion Control Conference,2006. EPE-PEMC 2006. 12<sup>th</sup>International. 2006. <http://invensense.com/mems/gyro/documents/RM-MPU-6000A.pdf>.
- [5] Kosba,Ahmed E., and Moustafa Youssef. "RASID demo: A robust WLAN device-free passive motion detection system."
- [6] DiptiJavale, Bharti Dixit ,PankajJavale, "Performance evaluation of wireless transmission using embedded system", IEEE paper, November 26 ,2009.
- [7] Flavia C. Delicato, Paulo F. Pires, Luci Pirmez, Thais Batista"Wireless Sensor Networks as a Service", 2010 17th IEEE International Conference and Workshops on Engineering of Computer-Basedsystems
- [8] X.Y. Chen & Z. G. Jin, "Research on key technology and applications for Internet of Things," Physics Procedia, vol. 33, pp. 561-566,2012
- [9] Feng, X. & Laurence, T.Y.. 2012. Internet of Things. Internet of Things (2014), retrieved fromMicrosoft[ONLINE]
- [10] Webb, E. Ki, Graeme I. Pearman, and Ray Leuning. "Correction of flux measurements for density effects due to heat and water vapour transfer." Quarterly Journal of the Royal Meteorological Society 106.447 (1980): 85-100.
- [11] Chen, Hai-Wei, et al. "Liquid crystal display and organic light-emitting diode display: present status and future perspectives." Light: Science & Applications 7.3 (2018): 17168-17168.