

## PORTABLE MINI BLUETOOTH PRINTER

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***Abstract.*** In this design we're presenting Portable Bluetooth printer which is Thermal grounded which can be used to publish barcodes, textbook, images along with benefits like fast outputs and a process that isn't reliant on ink to print where it relies on thermal to print, an image is produced using heat on thermos chromic paper. Thermal transfer printing, generally used in RFID tags printing, relies on a heat-sensitive ribbon instead of normal paper, but the process is the same. Using thermal printers for storehouse operation is a smart way to reap the significant benefits of force control and operation since they offer clear, crisp prints that are fluently read by people or scanners.

***Keywords:*** Bluetooth Printer, Mini Printer, Portable, Mobile, Thermal Printer, Receipt Printer, Android Printer, Wireless Printer.

### I. INTRODUCTION

This system shows the working of "Portable Mini Bluetooth Printer Project". Thermal printer is connived with the microcontroller grounded system and prints the text, number, characters and images (if needed) on the heat-sensitive paper. A user can use communication from a mobile phone microcontroller-based operation which is transferred to the grounded system via Bluetooth signals. System makes use of Android Apps to transmit the text to be printed through the printer. The data is send/received wirelessly through the Bluetooth module. This data is then received by microcontroller to transfer it via Bluetooth. Heat is the process that thermal printers use to produce an image. Thermal printers correspond of two types, thermal transfer (also known as thermal wax) and direct thermal (also known as thermal auto chrome). Special paper that's chemically treated is used by direct thermal printers, and when heat is applied to the paper it changes colors. The paper is pulled across a heating element within the printer through the use of roller, and for the section that it's heated and the paper changes color to form images or text. Again, thermal transfer printers hold the ink on a ribbon in place of on the paper itself which is also transferred to the paper when it's heated. Both designs utilize similar types of this thermal elements. An external hardware device is responsible for transferring data and generating a hard copy of that data. Printers are one of the most generally used peripherals and they publish text and still images on the paper. The printer consists of small wheels that run across the distance of paper. Connect the printer via Bluetooth to send the document & print.

## II. LITERATURE REVIEW

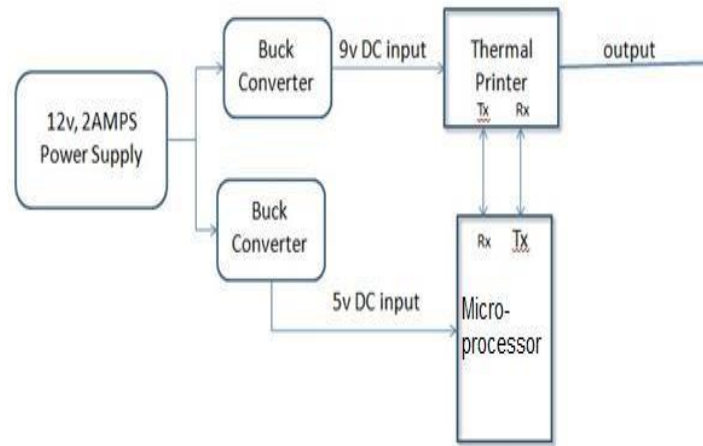
Thermal Inkjet Printer from research gate Jan 2021 introduces Thermal Inkjet technology. The thermal inkjet technology is mainly used in personal printers. In this technology, rapidly heating a micro-resistive element by electric current cause temperature rise up to approximately 3500 C and vaporize the ink in the reservoir.[1] Laser printers, from Department of Electrical Engineering and Information Technology JUN 2019, it reads the electronic data from your computer and beam this information onto a drum inside the printer, which builds up a pattern of static electricity. This attracts a dry powder called toner onto the paper which is then merged using heated rollers.[2] 3D printer, from DESIGN AND FABRICATION OF PORTABLE 3DPRINTER it is an additive manufacturing technique where 3D objects and parts are made by the addition of multiple layers of material. It can also be called as rapid prototyping. It is a mechanized method where 3D materials are quickly made as per the required size machine connected to a computerized machine containing blueprints of any object.[3] Design and Development of FDM Based Portable 3D Printer , 3D objects of any shapes which is design on a computer so electronic data source primarily through addictive process in which content different type of layers of material are laid down using computer command; this type of 3D printer use for industrial purpose. eg. Industrial robots. [5] 3D printing in education, it will benefit in education system which will make students involved; in which it will help them ability to visualise and make them to understand theoretical concepts in a better way and also improve their practical skills. [6] In present time many printers existed which are similar to few of module of proposed project. Portable Mini Bluetooth printers are dot-matrix printers that operate by driving heated pins against special heat-sensitive paper to “burn” the image onto the paper. It offers convenience in printing labels, receipts and bar codes quickly and cost effectively in a set location or on the go. It tends to be the printing style of choice for many kinds of transactions, including airline tickets, retail receipts, banking transactions, healthcare uses, school records and bar codes, among others.

## III. PROPOSED METHODOLOGY

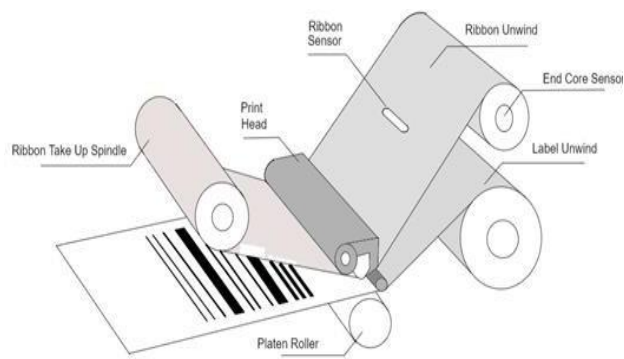
This system shows the working of “Portable Bluetooth Printer Project”. Then a thermal printer is interfaced with the microcontroller grounded system and prints the textbook, figures and characters on the heat-sensitive paper. A user can send data from a mobile phone grounded operation which is transferred to the microcontroller grounded system via Bluetooth signals. Our system makes use of a microcontroller grounded circuitry interfaced with a printer to achieve this purpose. System makes use of an android operation to transmit the data to be printed through the printer. The data is first transmitted to the circuitry by the app which is entered wirelessly through the Bluetooth module. This data is also received by microcontroller and processed to transfer it to the portable Bluetooth mini printer. The controller then processes data received and achieves the printing as per user’s requirement.

### FEATURES

- Thermal Printer have 100km TPH life.
- It has Low power consumption
- Large capacity battery
- It supports Android and can be used with any Billing Application Software available
- It is capable of printing multi-languages, character sets, numbers and also black and white images
- It has low operating cost
- It prints with the speed of 74mm per sec
- It is less noisy

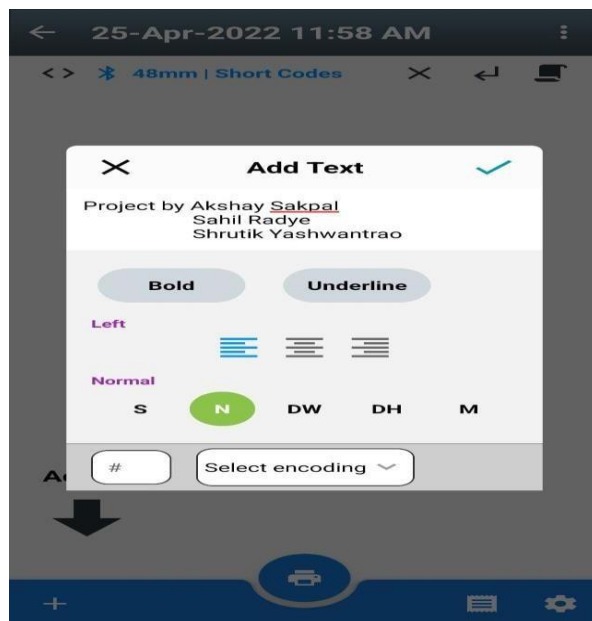


**Figure 3.1 Block Diagram Of Proposed System**



### Figure3.2. System Architecture

Thermal printing (or direct thermal printing) is a digital printing process which produces a printed image by passing paper with a thermo-chromic coating, generally known as thermal paper, over a print head consisting of tiny electrically heated elements. The coating turns black in the areas where it's heated, producing an image. Thermal head produces heat to produce an image on the paper. Platen is a rubber comber which moves the paper. Spring applies pressure to hold the paper and print head together. Thermal paper is saturated with a solid- state admixture of a color and a suitable matrix. This process is generally snap, but some two- color designs live, which can publish both black and a fresh color (frequently red) by applying heat at two different temperatures. In order to publish, the thermal paper is fitted between the thermal head and the platen and pressed against the head. The printer sends an electric current to the heating elements of the thermal head. The heat generated activates the paper's thermo-chromic layer, causing it to turn a certain color (for illustration, black). Thermal print heads can have a resolution of over to dots per inch (dpi). The heating elements are generally arranged as a line of small nearly spaced dots. Therefore, Data is sent wirelessly via. Bluetooth. Fig 3.2.



**Figure. 3.3 Home Page where we can type our text**

#### Components of thermal printer

Step1: Power On

Setp2: Attach the thermal paper roll to the printer.

Step3: Download the Android application“Bluetooth Print” from Google Play store.

Step4: Turn on the Bluetooth device andconnect with printer.

Step5: Enter text on screen and click onprint button.

Step6: Output.



**Figure. 3.4. Working of printer**

#### **IV. CONCLUSION**

Bluetooth Printers are convenient devices if you have wireless printing requirements. They can pair easily with your mobile phone and you can publish in a jiffy. Bluetooth Thermal printers have made printing fast and simpler than ever, allowing businesses and industries to give fast, and clear printouts for their guests. The emergence of high quality and Quick output has created a revolution in the Printing world. We can just use this mini printer and place it over a thermal paper and print.

#### **V. FUTURE SCOPE**

In Future, 5g technology can be implemented. Cloud printing will take a major role which means they are ideal for printing directly from laptops, smartphones or tablet. Mobile printers can be more affordable; because of affordability many people will be attracted to buy it. It can be used in some specific domains as medical, mobile e-commerce, home networking and travelling.

#### **VI. REFERENCES**

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