LIP10X BLUETOOTH PRINTER

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Abstract: The primary purpose of our proposed system is to develop a system that can Print the Data Received from external devices using Bluetooth Communication. To use Bluetooth wireless technology, a device must be able to interpret certain Bluetooth profiles, which are definitions of possible applications and specify general behaviors that Bluetooth-enabled devices use to communicate with other Bluetooth devices. These profiles include settings to parameterize and to control the communication from the start. Adherence to profiles saves the time for transmitting the parameters anew before the bi-directional link becomes effective. There are a wide range of Bluetooth profiles that describe many different types of applications or use cases for devices. Bluetooth can use in printers to allow effortless, cordless and wireless printing. Bluetooth printing provides an easier way for our computer to pass on print jobs to our printer without the need of any physical connections. Even if our computer and our Bluetooth printer are in different rooms, we can send print jobs at a data transmission speed of up to 3 Mbps, which is quite fast, because Bluetooth devices can connect to networks so easily.

IndexTerms **- STM32E103C8T6 Microcontroller, M66 Module, RS232 Communication Protocol, Dot Matrix Impact Printer**

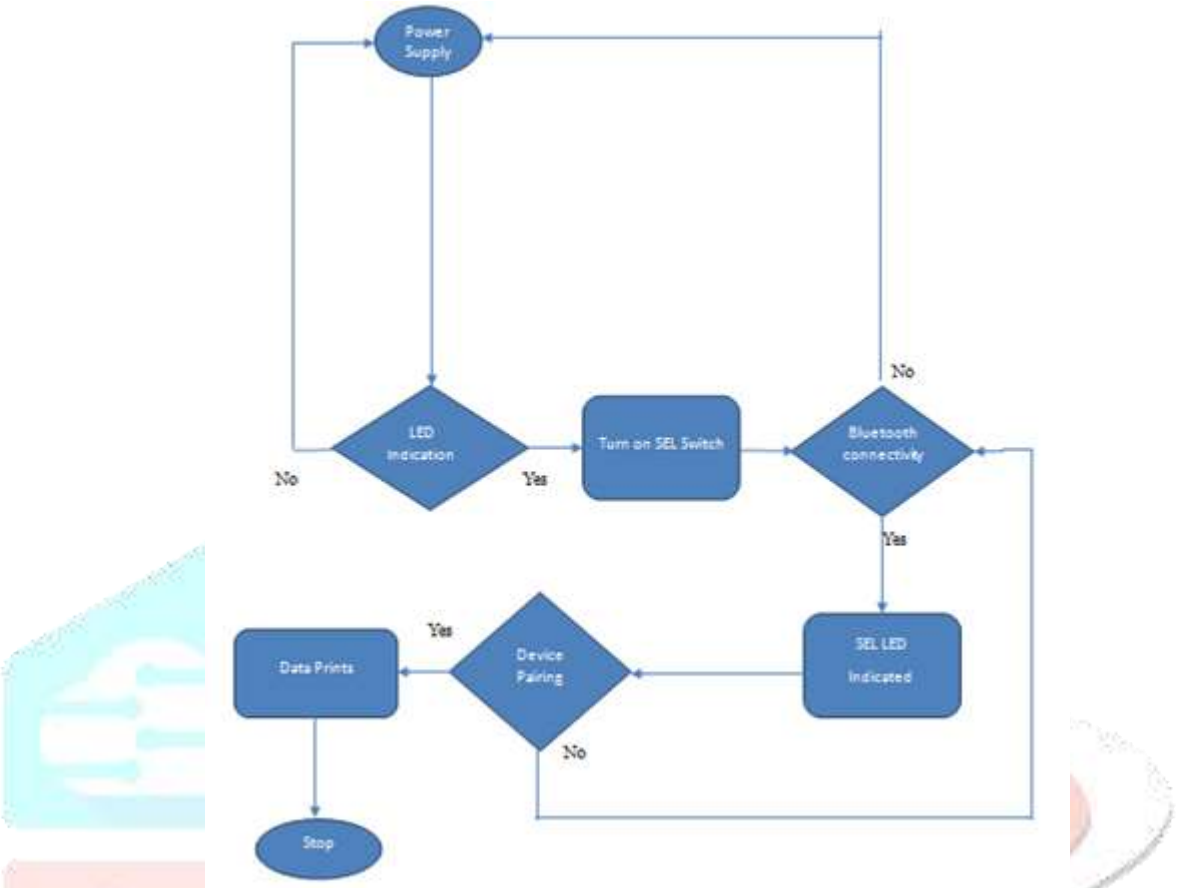
I. INTRODUCTION

BT is a proprietary open wireless technology standard for exchanging data over short distances (using short-wavelength radio transmissions in ISM band from 2400-2480MHz) from fixed and mobile devices, creating personal area networks with high levels of security. BT was standardized as IEEE802.15.1. And Quectel modules support BT3.0.To use BT wireless technology; a device must be able to interpret certain BT profiles. To use BT wireless technology, a device must be able to interpret certain BT profiles. BT profiles are definitions of possible applications and specify general behavior that BT enables devices to communicate with other BT devices. There is a wide range of BT profiles describing many different types of applications or use cases for devices. Through the guidance provided by the BT specification, you can create applications to work with other BT devices. Besides of all profiles, there are four basic ones: GAP, SDAP, SPP and GOEP profiles. Quectel modules support SPP and HFP. Each BT transceiver is allocated with a unique 48-bit BT device address. This address is derived from the IEEE802 standard. This datasheet provides the ordering information and mechanical device characteristics of the STM32F103x8 and STM32F103xB medium-density performance line microcontrollers. For more details on the whole STMicroelectronics STM32F103xx family, please refer to Section 2.2: Full compatibility throughout the family. The medium- density STM32F103xx datasheet should be read in conjunction with the low-, medium- and high-density STM32F10xxx reference manual.

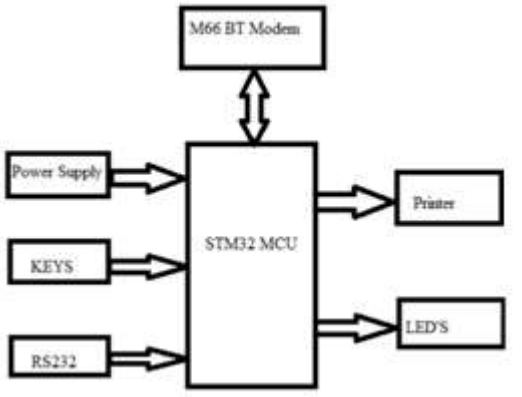
II. PROPOSED SYSTEM

In previous system there were Bluetooth 2.0 Communication, Low Speed Impact Printer,512 KB Memory for data storage,Large in Size but, in proposed system we have Bluetooth 3.0 Communication,High Speed Dot Matrix Impact Printer,1 MB Memory for data storage,Small in Size and light in weight.So, the proposed system is more advanced when compared to existing system in many ways, In the proposed system we can use both serial communication and Bluetooth 3.0 communication.

III. FLOWCHART



IV. BLOCK DIAGRAM



The system consists of a microcontroller called STM32F103C8T6, power supply in the system can be power supplied with 12v and the system is not directly powered on and it will be having a power on/off switch by which it can be powered on and system is provided with a cable called RS232 by which communication is transferred through this cable. This system also consists of a keypad through which give input to the system to access the student details through keypad. RTC is used to display the time in minutes, seconds, month of the day, month. Liquid crystal display is used to display whatever we give input to the system. Printer action is mainly used to print the data about student.

V.HARDWARE COMPONENTS

(A):-STM32F103C8T6

The STM32F103CBT6 medium-density performance line family incorporates the high- performance ARMCortex-M3 32-bit RISC core operating at a 72 MHz frequency, high-speed embedded memories (Flash memory up to 128 Kbytes and SRAM up to 20 Kbytes), and an extensive range of enhanced I/Os and peripherals connected to two APB buses. All devices offer two 12-bit ADCs, three general purpose 16-bit timers plus one PWM timer, as well as standard and advanced communication interfaces: up to two I^2Cs and SPIs, three USARTs, an USB and a CAN.

(B):- Power Supply& Power on Switch

The power here we used is 12v which is used to power on the system by which the power on/off switch is used to power the system in order not to direct get the power supply and the microcontroller uses only 5v which intern all the components are driven by 3.3v .

(C):-RS 232

In telecommunications, **RS-232**, Recommended Standard **232** is a standard introduced in 1960 for serial transmission of data. It formally defines the signals connecting between a DTE (data terminal equipment) such as computer, and a DCE (data circuit-terminating equipment or data communication equipment), such as a modem. The standard defines the electrical characteristics and timing of signals, the meaning of signals, and the physical size and pin out of connectors. The RS-232 standard defines the voltage levels that correspond to logical one and logical zero levels for the data transmission and the control signal lines. Valid signals are either in the range of +3 to+15 volts or the range−3 to −15 volts with respect to the "Common Ground" (GND) pin; consequently, the range between −3 to +3 volts is not a valid RS-232 level.

(**D**):- **Dot Matrix Impact Printer**

Dot matrix is the process of computer printing which uses a print head that moves back- and-forth or in an up-and-down motion on the page and prints by impact, striking an ink-soaked cloth ribbon against the paper, much like the print mechanism on a typewriter. However, unlike a typewriter or daisy wheel printer, letters are drawn out of a dot matrix, and thus varied fonts and arbitrary graphics can be produced. These printers can print on multi-part forms since they print using mechanical pressure. Dot matrix printers, like any impact printer, can print on multi- part stationery or make carbon-copies. Impact printers have one of the lowest printing costs per page.

(E):- **M66 BLUETOOTH MODEM**

M66 is an ultra-small quad-band GSM/GRPS module using LCC castellation packaging on the market. Based on the latest 2G chipset, it has the optimal performance in SMS & Data transmission and audio service even in harsh environments. The ultra-compact 15.8mm × 17.7mm × 2.3mm profile makes it a perfect platform for size sensitive applications. M66 adopts surface mount technology, making it an ideal solution for durable and rugged designs. The low profile and small size of LCC package makes sure M66 can be easily embedded into size-constrained applications, and provides reliable connectivity with applications. This kind of package is ideally suited for large-scale manufacturing which has strict requirements for cost and efficiency. The compact form factor, low power consumption and extended temperature make M66 a best choice for M2M applications such as wearable devices, automotive, industrial PDA, personal tracking, wireless POS, smart metering, telemetries, and more.

VI.APPLICATIONS

- The Bluetooth technology is commonly used for creating wireless networks in the IT field.

- Receipt printing, especially when multipart forms are required.

VII.CONCLUSION

In this project we have studied and implemented a LIP10X BLUETOOTH PRINTER using STM32F103CT86 Microcontroller. We can Print the Text data received through Bluetooth/Serial Communication using this proposed Bluetooth Printer System. The programming and interfacing of microcontroller has been mastered during the implementation. The LIP 10X BLUETOOTH PRINTER in this paper is totally related with industry oriented related works for an time saving environment. Most of dot matrix printers are usually used in shopping malls, Restaurants And government related works in the form of billing formats.

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