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SECURE MESSAGE TRANSMISSION BASED ON ANDROID

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ABSTRACT

Bluetooth offers a low-power and occasional-cost Wi-Fi connection amongst cellular devices and their accessories that is an open standard for enforcing a quick-range wireless conversation. Bluetooth is included into Android that's a mainstream clever cell phone platform as a median of cell verbal exchange. Android has attracted a huge number of builders because of its character of open sourcing and powerful application. It takes designing a Bluetooth chat room for instance to investigate Bluetooth and its structure of android platform and introduce the system of knowing the Bluetooth conversation in detail. Then we design and enforce a talk room based on Bluetooth by the use of Android platform. At ultimate, a similarly prospect of the feature of this machine was made.

Keywords: Android Phone, Bluetooth, Keypad and Micro-Controller

I. INTRODUCTION

In current years, with the improvement of cell communication and mobile terminal, especially the discharge of Android smart cell phone platform has injected new vitally to the cellular space. Android is an open sourcing cellular working machine based on Linux that's a completely open and integrated platform for cell gadgets. Android platform includes running machine, middleware, and consumer interface and alertness software. Bluetooth era is a mature quick-variety Wi-Fi communique technology. The working frequency band of Bluetooth do now not need a license around the globe. The advantage of Bluetooth generation are reflected inside the low fee, clean to manipulate and non-visual distance barriers. Bluetooth is an essential characteristic of the smart cell phone, that's included into the android platform, because the android cellular network verbal exchange module. The android machine presents many Bluetooth APIs for builders to call. The majority of the cell phone communication with every other right here normally thru china cell or china cell or china Unicom gateway, which have to pay related costs. This paper carry out a talk gadget through the API of the Bluetooth of android telephones may be divided into customer and server and then real-time chat between pals or strangers may be executed.

II. LITERATURE REVIEW

The IEEE 802.15.4 normal may be an easy packet information protocol for light-weight wireless networks and specifies Medium Access management –MAC and the Physical-PHY layers for Multiple frequency –RF bands, together with 868 Mc, 915 MHz, and 2.4 GHz.The IEEE 802.15.4 normal is intended to supply reliable information transmission of modest amounts of knowledge up to one hundred meters or additional whereas overwhelming little or no power. IEEE 802.15.4 is often but thirty two K in size that includes a 64-bit address house, supply and destination. ZigBee technology takes full advantage of the IEEE 802.15.4 normal and extends the capabilities of this new radio normal by shaping a versatile and secure network layer that supports a spread of architectures to supply extremely reliable wireless communications in harsh or dynamic RF environments.ZigBee technology additionally offers simplicity and efficient approach to putting together, construction and re-modelling with wireless technology. ZigBee is ready to supply the customers with final flexibility, mobility, and easy use by building wireless intelligence and capabilities into daily devices.ZigBee technology additionally offers simplicity and efficient approach to putting together, construction and re-modelling with wireless technology. ZigBee is ready to supply the customers with final flexibility, mobility, and easy use by building wireless intelligence and capabilities into daily devices.ZigBee is predicted to supply low value and low power property for instrumentality that wants battery life as long as many months too many years however doesn't need information transfer rates as high as those enabled by Bluetooth. This type of network eliminates use of physical local area network cables. The devices might embrace telephones, hand-held digital assistants, sensors and controls settled at intervals a number of meters of every alternative.

In this system data transmission provides based on Bluetooth communication but whatever the data or information are send by person to other locations through this technology ,there will be loss of data or in encryption ,description process hacking of data is possible .So, for to avoid those occurrences we are proposed the system with authentication process. The proposed system of secure message transmission using Bluetooth wireless communication an alternative solution for data encryption secured transmission. This system is intended to be used in short range communication applications. The system consists of a Bluetooth module interfaced with a LPC2148 microcontroller at one end of the communication and it also contains a keypad for giving the text input. The other end of the system will have android phone. Dual way communication are done between two people with securely by providing authentication process with the help of keypad. By entering specific password then data transmission will process from one source to another destination. Hence it is easy to process the communication between one or more peoples.

III. HARDWARE DESIGN

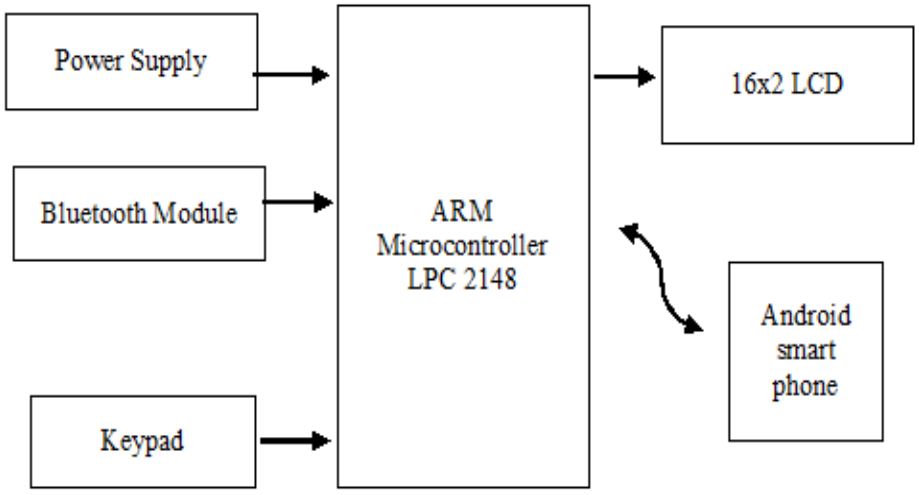

Fig 1: Block Diagram

It is composed of various hardware and software modules. The following block diagram indicates the evaluation of hardware components blanketed in the device.

3.1 LPC2148 Microcontroller

Over the previous few years, the ARM design has become the foremost standard 32-bit design within the world, with wide selection of ICs obtainable from varied IC makers. ARM7 & Cortex series is largest success of ARM . ARM processors area unit embedded in merchandise starting from cell/mobile phones to automotive braking systems. A worldwide community of ARM partners and third-party vendors has developed among semiconductor and products style firms, together with hardware engineers, system designers, and software package developers.

ARM Holdings develops the instruction set and design for ARM-based product, however doesn't manufacture product. Then your 1st question is, however company earns?

Well, ARM Holding licenses the chip styles and also the ARM instruction set architectures to 3rd parties, United Nations agency style their own product that implement one in all those architectures cores. Currently, the wide used Cortex cores, older "classic" cores, and specializedsecure cores variants area unit obtainable. corporations that create chips that implement associate degree ARM design embrace Apple, NXP, ST electronics, NVidia, Qualcomm, Samsung natural philosophy, and American state Instruments, etc.

in step with ARM Holdings, in 2010 alone, producers of chips supported ARM architectures according shipments of half dozen.1 billion ARM primarily based processors, representing ninety fifth of smartphones, thirty fifth of digital televisions and set-top boxes and 100% of mobile computers. it's the foremost wide used 32-bit instruction set design in terms of amount made.

ARMcould be a family of instruction set designs for laptop processors supported a reduced instruction set computing British company ARM Holdings were developed (RISC) architecture. A RISC-based laptop style approach means that ARM processors need considerably fewer transistors than typical processors in average computers. This approach reduces prices, heat and power use. This area fascinating traits for lightweight, portable, powered devicesincluding smartphones, laptops, pill and pad computers, and different embedded systems. An easier style facilitates additional economical multi-core CPUs and better core counts at lower value, providing higher process power and improved energy potency for servers and supercomputers.

The NXP (founded by Philips) LPC2148 is associate ARM7TDMI-S primarily based superior 32-bit architecture controller with 512KB on-chip read-only memory with In-System Programming (ISP) and In-Application Programming (IAP), 32KB Random access memory , the controller can provide Vectored Interrupt Controller, 2 10bit ADCs with fourteen channels, USB 2.0 Full Speed Device Controller, Two UARTs, one with full electronic equipment interface. 2 I2C serial interfaces, 2 SPI serial interfaces 2 32-bit timers, Watchdog Timer, PWM unit, Real clock with facultative battery backup, Brown out find circuit General purpose I/O pins.

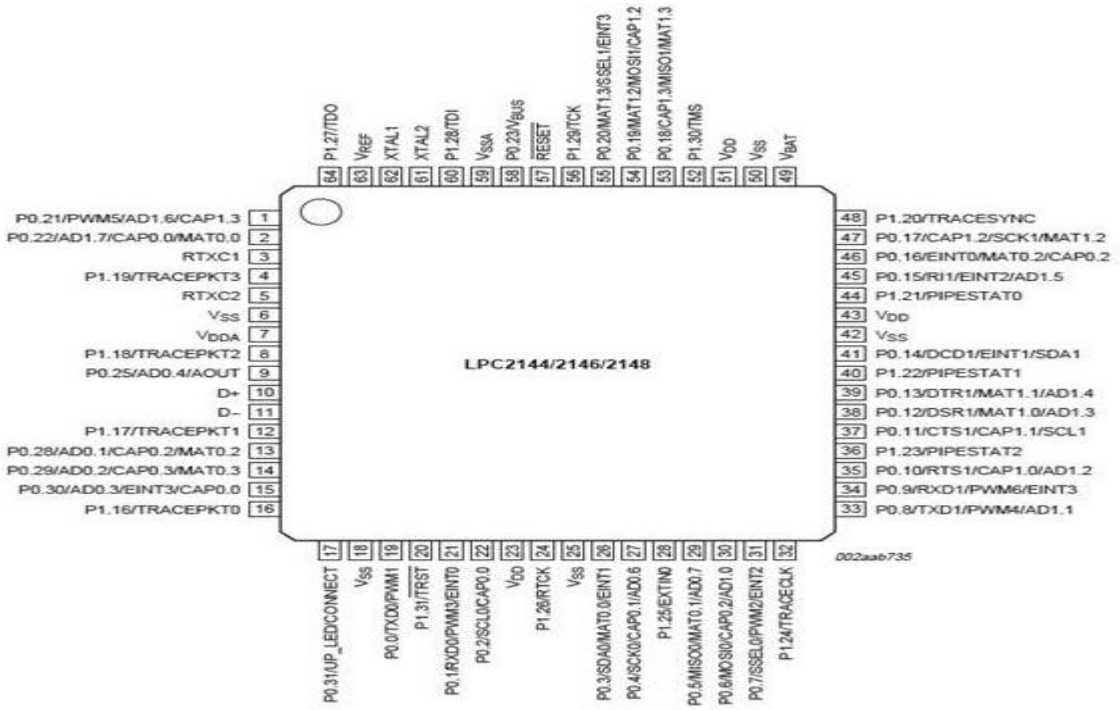

Fig2. LPC2148 Pin Diagram

3.2 Bluetooth

Bluetooth could be a wireless technology customary for exchanging knowledge over short distances (using short-wavelength UHF radio waves within the belief band from two.4 to 2.485 GHz from fastened and mobile devices, and building personal space networks (PANs). Fictional by telecommunication trafficker Ericsson in 1994, it had been originally formed as a wireless different to RS-232 knowledge cables.

In particular, our Bluetooth good network processors – BlueNRG, BlueRNG-MS, embedding the complete Bluetooth low-energy master and slave certified stack - area unit that includes ultra-low power consumption in conjunction with a wonderful RF link budget as requested by accessories and wearable devices to increase

operation upon battery recharge. With their on-chip non-volatile memory they allow a simple and fast computer code upgrade.

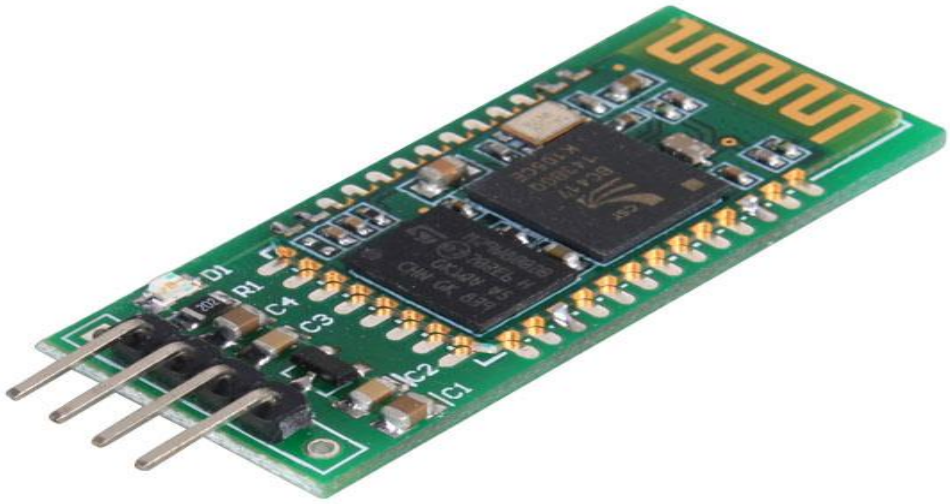

Fig3. Bluetooth Module

ST modules for Bluetooth good and Bluetooth Classic - - area unit supported our transceivers and network processors and area unit equipped with antenna, crystal and balun. they are available with the embedded Bluetooth stack to produce a BQE final result qualified answer that's additionally absolutely RF, ETSI, IC and independent agency certified, therefore guaranteeing fast integration into the ultimate application And providing an easy-to-use answer, reducing the time to promote cycle, with low development price and extremely low integration risk. Our ICs and module area unit supported by an intensive set of analysis boards, software, computer code and application notes.

3.3 Keypad

A keypad is a set of buttons organized in a block which generally bear digits and other symbols but now not a complete set of alphabetical letters. If it often incorporates numbers then it is able to additionally be called a numeric keypad. Keypads are observed on many alphanumeric keyboards and on different devices including calculators, mixture locks and telephones which require in large part numeric input. An enter tool, occasionally a part of a preferred laptop keyboard, together with a separate grid of numerical and function keys arranged for efficient information entry.

Keypads have integrated deep into everyday schedule of a mean individual that it's almostMembrane data input device not possible to hold out performing on electronic devices while not exploitation them. laptop keyboards, calculators, remote controls, game joysticks, electronic locks and ATM machines square measure simply a couple of cases wherever one cannot do even one task while not exploitation data input device. It becomes quite

uncanny that however deeply this electronic accent has embedded into lives of a significant a part of the population. numerous varieties of keypads exist as per user's needs. as an example, laptop and a few smartphones have QWERTY data input device whereas calculators and straightforward telephones go with associate degree alphamerical data input device.

IV. SOFTWARE DESIGN

In this proposed gadget, as we used LPC2148 we want to use following software equipment to program for it.

1. KeiluVision
2. Flash Magic

The KeiluVision is an Integrated Development environment (IDE) which consist of all the C/C++ Debugger, Editor and complier. By existing those feature you can built our own application. We write code in such a way to implement our application in embedded c. In this IDE, we want to import the utilities and libraries according to the controller we're the use of. This IDE is very less difficult and in user friendly way to apply. It consists of all the C/C++ compilers, assemblers, and debuggers in it. It simplifies the manner of embedded simulation and trying out in conjunction with Hex file technology.

The flash magic is a programming utility. The C/C++ software written in IDE may be processed into Hex document i.e. in .hex layout. By using hex file we dump the code into microcontroller and perform the task with respective application.

V. WORKING DESCRIPTION

The aim of this project is to implement a wireless communication network which would useful for less distance range of data transfer from one node to another node. The communication technology must be always cheaper as this is intended to use in less range of communication and also the data rate is enough faster. The project is also aimed to provide a secure data transfer through Bluetooth by using a secured password access to view the message. The password access is a conventional method but efficient as well as faster to access compared to other security methods. The implemented system is an alternative solution for short range data transfer and which is no cost methodology. Targeting the communication needs of a corporate office, educational institutes, etc. we are implementing the secure message transmission system by using Bluetooth, which is no cost communication method.

VI. RESULTS

We have observed the output of the project, While one unit sending the data to the other, it can be displayed on LCD in encrypted form and after entering the correct password by the user then the original data will be displayed. In the same way, the other section can also transmit the data by using android phone. By using smart android phone we can easily communicate data between one or more persons.

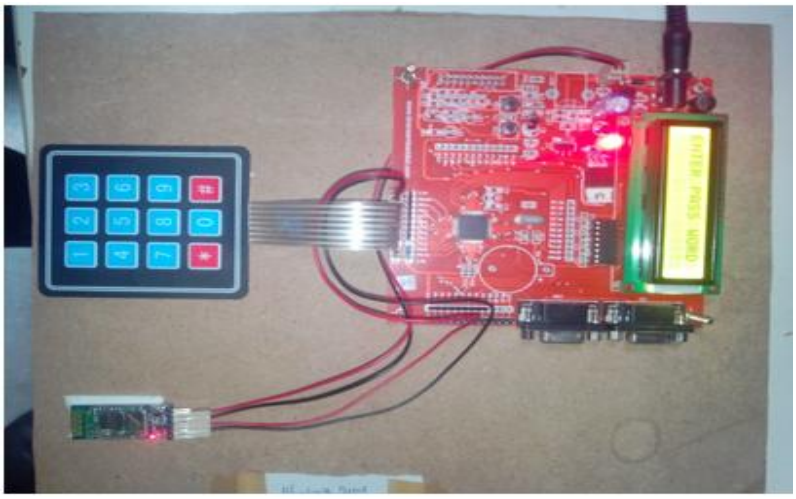

Fig4: The overview of system interface with controller, keypad and Bluetooth

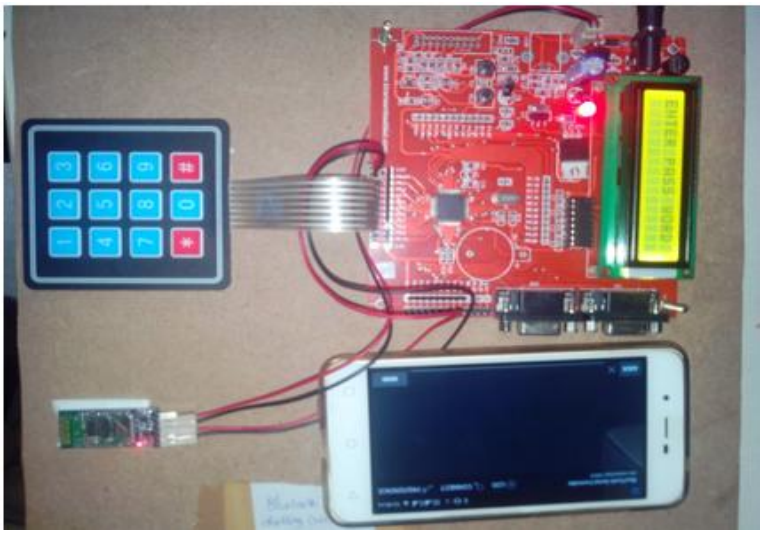

Fig5: The android serial terminal from android mobile phone communicate with other device (main system)

In this project we consider following sequences as notice below.

1) Check the communication between android phone and system which consist of Bluetooth interface with microcontroller along with keypad.
2) Verify the person is authorized or not
3) If person is authorized then communication between one section to another section will occurred then easy way of transmission will happened which having manually security through keypad.
4) If password matched then communication will happened at the two ends

VII. CONCLUSION

The secure message transmission system through Bluetooth is an advanced and solution for short range communication which is a simple alternative for the encryption and decryption techniques. The Bluetooth usage

in this system makes it simpler and cheaper for short range data transfer. The security through keypad will provide a simple and secured feature for data security that can make it useful for all kinds of people.

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