IJIIT
International Journal of Infinite Innovations in Technology|ISSN:2278-9057
IJIIT|Volume-V|Issue-I|2016-2017 July|Paper-02
Reg. No.:20160602|DOI:V5I1P02

Touch Communication

Transferring data through human body

Roshani Rajput Prof Amit Jain
Department of Information Technology
Rajiv Gandhi Proudyogikia vishvavidyalaya,Bhopal,Madhya Pradesh
E-Mail Id :rajput.rosh89@gmail.com

Abstract—

All the user-friendly services require technologies that enable communication between people and objects in close proximity. Our Project describes a model of human area networking technology that enables communication by touching, a technology we call RedTacton. We are planning to implement this technology to enable printing just by touching the computer. Technology includes the use of the person body as a signal path for communication. A transmission path is formed automatically when a person comes into contact with a device and communication between mobile terminals begins. Here, the human body acts as a transmission medium supporting half duplex communication at 10Mbit/s.
RedTacton technology was developed by NTT,Japan. It uses minute electric field generated by human body as medium for transmitting the data. The device will be able to send/accept the data in digital format on Touch, as in when we touch the computer the printer will print the respective file.

1.Introduction

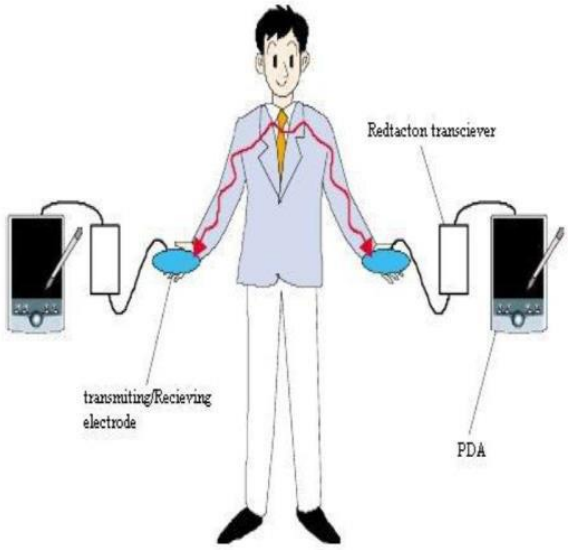
1.1 Communication today

In today's world, people can communicate anytime, anywhere and with anyone over a cell phone. Also, through internet people can download large quantities of quality data from remote locations. These technologies facilitate far-away communication for the users. Most electronic devices including personal digital assistants (PDA's), pocket video games and digital cameras have reduction in size, so that they can be carried around and used at the instance of requirement. These are used to carry various personal or public information and communications in everyday activities. Communication between electronic devices on the human body and one's embedded in our everyday environments is also critical, so this has driven extensive research and development on human area networks. Wired connections between electronic devices in human area networks are messy and can easily become entangled. Short range wireless communication systems such as Bluetooth and wireless local area networks have some problems. Throughput is reduced by packet collisions in crowded space such as meeting rooms and auditoriums filled with people and communication
is not secure because signals can be
intercepted. The principle drawback of infrared communication is the tight directionality of beams between terminals is needed for the system to be effective.

1.2 Intra Body Communication

The ultimate solution to all these constraints of conventional technologies is "intra body" communication, in which the human body serves as the transmission medium. If we could use the human body itself as a transmission medium, then this would be an ideal way of implementing human area networks because it would solve at a stroke all the problems including throughput reduction, low security and high network setup costs Once developed there would be plenty of applications where we can implement this technologylike in our project we would be trying to integrate this technology to transfer our file to the printer just by touching the computer. This would be a boom to the human computer interaction concept. **[1]**

Figure 1.Intra Body Communication



1.2Overview:

The basic idea is to achieve seamless communication by using human body as the transfer medium .The

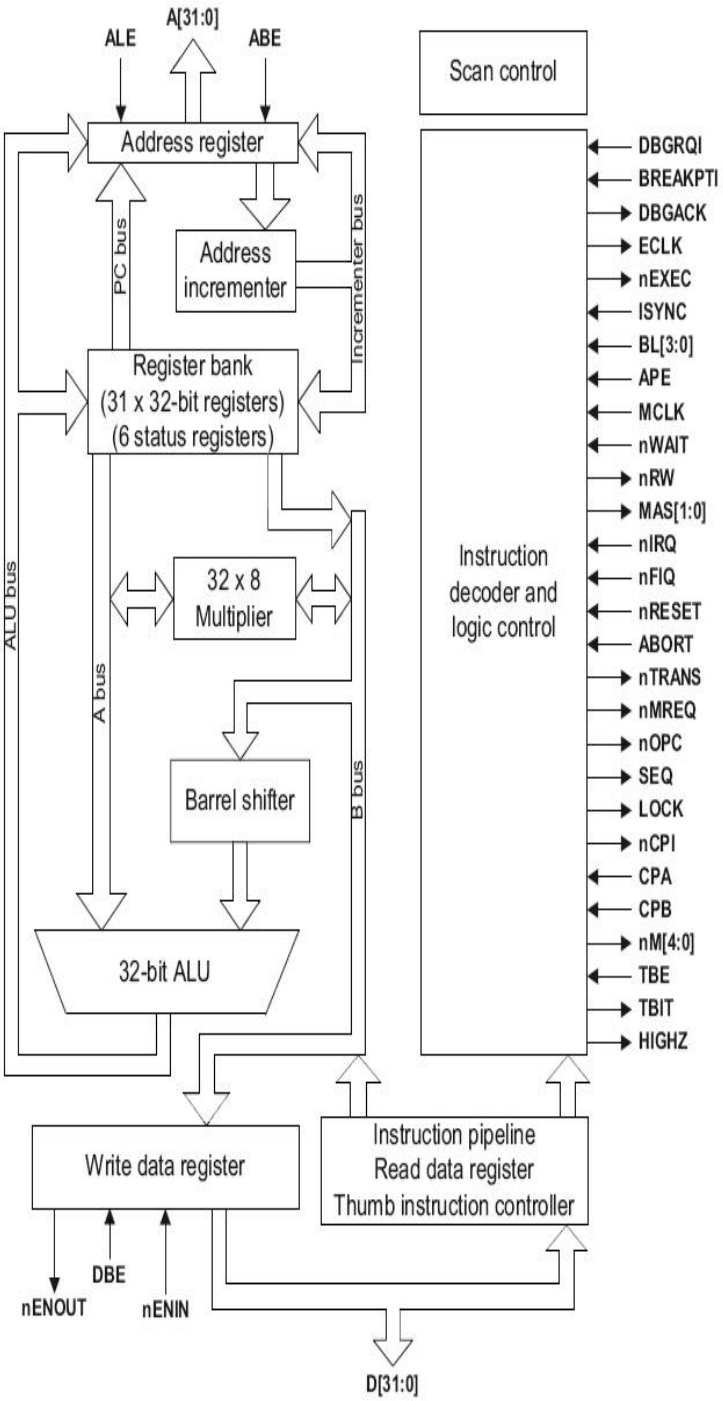
idea is to develop a hardware on both sending and the receiving end along with a software that will be

installed on the devices. Whenever the two devices wish to communicate, just as we turn on Bluetooth, we just touch the system at the sending and the receiving end.
When there's human body in contact, the circuit is complete and the body acts as a transfer medium for the data. This happens(and is completely safe) because our body houses weak electric field and taking advantage of that, the transfer of the data takes place.
Now because of earthing, the signal becomes weak and data may not be able toreproduce at the receiving end. But this is completely taken care by having an amplifier at the receiver which amplifies the signal so that data is intact. Giving a thought to safety factor, this is completely safe for the human body since the signal sent will be of very small voltage.

Process (Data transfer):

1. Select the option start sending at the application window
2. Touch the device at the senders end
3. Touch the device at the receiving end
4. The data will appear at the receivers application window and data transfer is complete One of the major advantages over existing systems is that it does not need the radio links which all the systems till now do.

Secondly since human body is the medium, connection achieved is dedicated which results in higher data transfer rates. Transfer speed is also much higher than other technologies.
For the development part: two interfaces need to be developed, one for each end of the communicating systems. Selecting the file to be transferred from one of the interface, the file will start transfer as soon as the touchpad is touched.



2. Hardware Required:

The hardware components used for system are as follows:

2.1 ARM 7

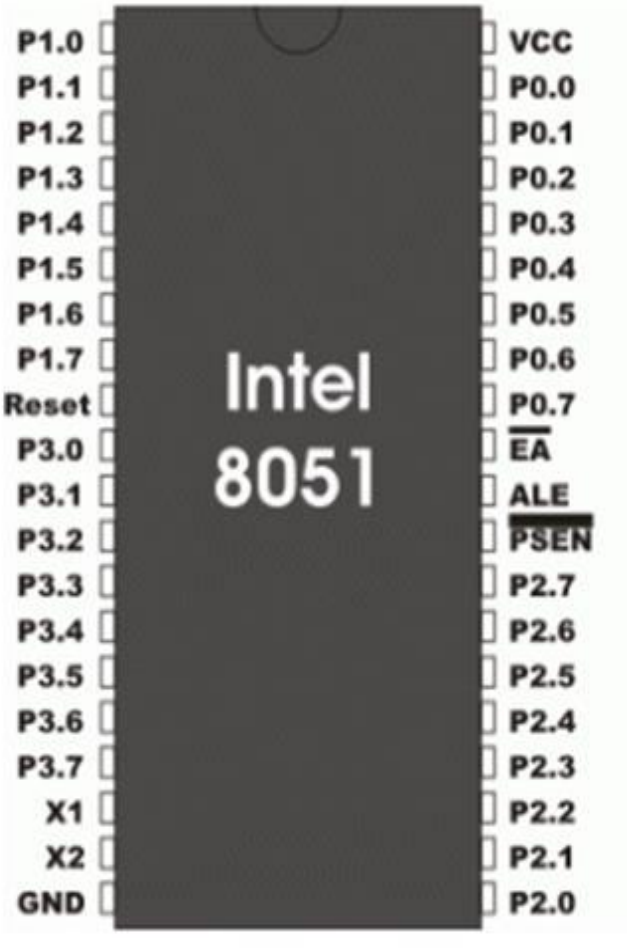


Figure 2: 8051 Microcontroller with Pin Diagram

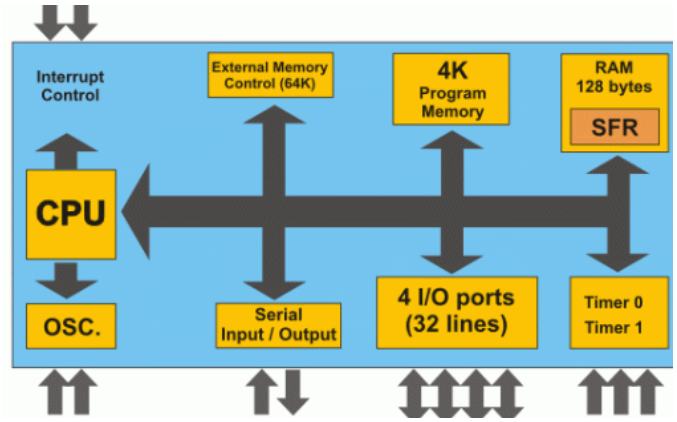


Figure 3: 8051 Microcontroller with Architechture

Architecture:

The Intel 8051 is an 8-bit microcontroller which means that most available operations are limited to 8 bits. There are 3 basic "sizes" of the 8051: Short, Standard, and Extended. The Short and Standard chips are often available in DIP (dual in-line package) form, but the Extended 8051 models often have a different form factor, and are not "drop-in compatible". **[2]** Some of the features that have made the 8051 popular are:

- 4 KB on chip program memory.
- 128 bytes on chip data memory(RAM).
- 4 reg banks.
- 128 user defined software flags.
- 8-bit data bus
- 16-bit address bus

2.2 Power supply

A power supply is a device that supplies electric power to an electrical load. The term is most commonly applied to electric power converters that convert one form of electrical energy to another, though it may also refer to devices that convert another form of energy (mechanical, chemical, solar) to electrical energy. **[3]**

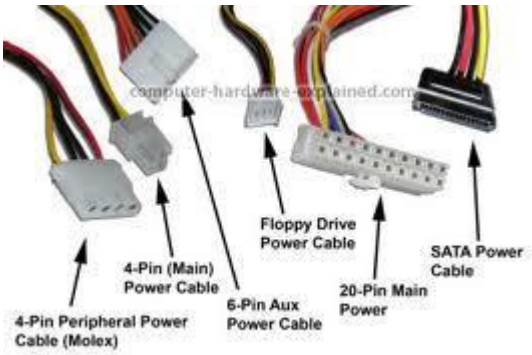


Figure 4. Power Supply

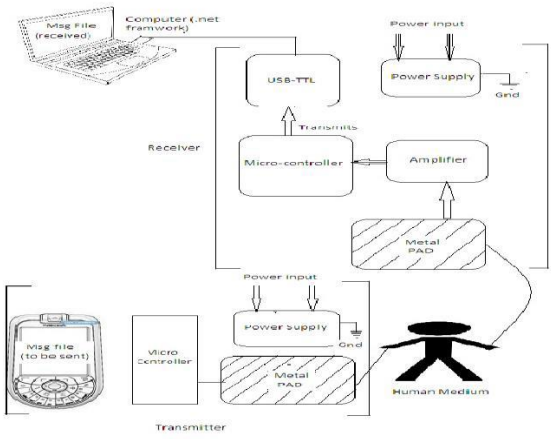


Fig. 9: Block diagram of System

3. Software for system:

The softwares used to build the system are as follows:

3.1 Microsoft Visual Studio

It is an integrated development environment (IDE) from Microsoft. It is used to develop console and graphical user interface applications along with Windows Forms or WPF applications, web sites, web applications, and web services in both native code together with managed code for all platforms supported by Microsoft Windows, Windows Mobile, Windows 60
CE, .NET Framework, .NET Compact Framework and Microsoft Silverlight. **[7]**

3.2 Java Platform, Micro Edition:

Java Platform, Micro Edition, or **Java ME**, is a Java platform designed for embedded systems (mobile devices are one kind of such systems). Target devices range from industrial controls to mobile phones (especially feature phones) and set-top boxes. Java ME was formerly known as **Java 2 Platform, Micro Edition** (**J2ME**).

Java ME was designed by Sun Microsystems, acquired by Oracle Corporation in 2010; the platform replaced a similar technology, PersonalJava. Originally developed under the Java Community Process as JSR 68, the different flavors of Java ME have evolved in separate JSRs. Sun provides a reference implementation of the specification, but has tended not to provide free binary implementations of its Java ME runtime environment for mobile devices, rather relying on third parties to provide their own.**[8]**

9. Conclusion

We believe this idea will prove to be a new, innovative. We firmly believe that the implementation of the project will be smooth as it is expected to be in accordance with the detail study of our project that we have achieve till this stage. The various modules and their detailed design studied above will help define our project's implementation and provide strong base for developing the various modules practically.

10. References

[1]https://www.google.co.in/#q=intrabody+communication
[2] http://www.mikroe.com/chapters/view/65/
[3] http://en.wikipedia.org/wiki/Power_supply
[4] http://en.wikipedia.org/wiki/Transformer.
[5]http://www.ftdichip.com/Support/Documents/DataSh eets/Cables/DS_TTL-232R_CABLES.pdf
[6] http://en.wikipedia.org/wiki/Operational_amplifier
[7]http://en.wikipedia.org/wiki/Microsoft_Visual_Studio
[8]http://en.wikipedia.org/wiki/Java_Platform,_Micro_Edition
[9]http://www.engineersgarage.com/electronic-components/rf-module-transmitter-receiver