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Introduction To SPARSH.

- ❖ **The Computer Revolutionized the Way, We Share Data With Everyone Around Us. It gave us the Power to Connect with Different People around the World and Share the Data on a Common Platform Called the Cloud.**
- ❖ **For Example, If We are in United States for a Conference related to Some Subject but Suddenly. There is a Need to Share Some Important Document Of Our Company for Legal Issues, Then We Can Scan and Upload Those Documents on the Company's Trusted Cloud Account and The Verified Person can Access and Get a Print of Those Documents and All the Issue is Settled, Without Us getting Back Here to Deliver those Document Personally.**
- ❖ **But All These Happens Through a Cloud Account with The Use of Internet, But What if a Person Wants To Transfer Files Urgently! And Does Not**

Have a Working Internet Connection in The Premises, Even Though He Just Wants to Transfer a File from One Computer to Another in Order To get the File on That Computer Too. But He is Forced to Look For an Internet Connection To Upload it Over Cloud and Then Get it Into Another Computer, Or He Can Plug a Pen Drive Into One and Connect it To Another Computer and Transfer The File, But Then He need To Take care Of That PEN-DRIVE Like a Child, Because Of the Sensitive Information Stored on That Pen Drive.

- ❖ That's Where SPARSH Steps in, With SPARSH a Person Can Transfer Data from a Computer to Another Computer, Without the Use of Any Internet or Pen Drive, The Medium used in SPARSH to Transfer Data is Our BODY. Our Body Helps Us to Transfer Our Data in The form Of Electrical Impulses from One Computer to another Computer Through the use Of SPARSH.**

Concept:

- **The Concept Behind SPARSH is Really Simple. It Transfer Data From One Place To Another Only The Medium Changes. Because We are Used of Transferring Data With The Help Of Pen Drives Or Cables Or Through A Software Which Requires a Internet Connection.**
- **But with SPARSH, We can Transfer the Data without Any Wires or Internet Connection, And Only with the Help of Our Body.**
- **What it does is, It Uses 2 Touch Pads on Both the Computer which are Attached to the Computer through the USB. The SPARSH Software needs to be there on Both the Computers. Then we Need to Select the COM-Port to Which the USB is Connected and Check whether its Ready to Transfer Data. Once it is Ready, We need to place our One Hand On, One of the 2 Touch Pads of The Device and the Other**

Hand on The second Pad and Click on Transfer. Just that and The Data will be transferred to the Other Computer. Without any use of Wires, Or a Cloud Account, Or a Pen Drive. Just with the Help of a Material that's there with Us All the Time. And Also Without causing any Harm to Our Body as Our Body is a Great Conductor to Electricity. And Only a mere 5V of Current is Passed Throughout the Process.

- **This Can Help in Speeding Up the Process of Data Transfer, and Also Create a Safer Alternative For Transferring Data without any Interventions.**

Hardware Specifications.



USB TTL.

- The cable is easiest way ever to connect to your microcontroller serial console port. Inside the big USB plug is a USB<->Serial conversion chip and at the end of the cable are four wire - red power, black ground, white RX into USB port, and green TX out of the USB port. The power pin provides the 5V @ 500mA direct from the USB port and the RX/TX pins are 3.3V level for interfacing with the most common 3.3V logic level chipsets.
- Because of the separated pin plugs, this cable is ideal for powering and connecting up to the debug/login console. Connect the pins to power to establish the RX/TX link.

- A **USB adapter** is a type of protocol converter which is used for converting USB data signals to and from other communications standards. Commonly, USB adapters are used to convert USB data to standard serial port data and vice versa.
- Most commonly the USB data signals are converted to either RS232, RS485, RS422 or TTL serial data. The older serial RS423 protocol is rarely used anymore, so USB to RS423 adapters are less common.



LM 358.

- The **LM358** is a low power dual operational amplifier integrated circuit originally introduced by National Semiconductor. It is used in detector circuits.



Step-Down Transformer.

- Step-Down Transformer is one whose secondary voltage is less than its primary voltage. It is designed to reduce the voltage from the primary winding to the secondary winding. This kind of transformer “steps down” the voltage applied to it.
- As a step-down unit, the transformer converts high-voltage, low-current power into low-voltage, high-current power. The larger-gauge wire used in the secondary winding is necessary due to the increase in current. The primary winding, which doesn't have to conduct as much current, may be made of smaller-gauge wire.



General Purpose Diodes.

- The **1N4001 series** (or **1N4000 series**) is a family of popular 1.0 A (ampere) general-

purpose silicon rectifier diodes commonly used in AC adapters for common household appliances. Blocking voltage varies from 50 to 1000 volts. This diode is made in an axial-lead DO-41 plastic package.

- The **1N5400 series** is a similarly popular series for higher current applications, up to 3 A. These diodes come in the larger DO-201 axial package.



Capacitor.

- A **capacitor** (originally known as a **condenser**) is a passive two-terminal electrical component used to store electrical energy temporarily in an electric field. The forms of practical capacitors vary widely, but all contain at least two electrical conductors (plates) separated by a dielectric (i.e. an insulator that can store

energy by becoming polarized). The conductors can be thin films, foils or sintered beads of metal or conductive electrolyte, etc. The non-conducting dielectric acts to increase the capacitor's charge capacity. Materials commonly used as dielectrics include glass, ceramic, plastic film, air, vacuum, paper, mica, and oxide layers. Capacitors are widely used as parts of electrical circuits in many common electrical devices. Unlike a resistor, an ideal capacitor does not dissipate energy. Instead, a capacitor stores energy in the form of an electrostatic field between its plates.

- When there is a potential difference across the conductors (e.g., when a capacitor is attached across a battery), an electric field develops across the dielectric, causing positive charge $+Q$ to collect on one plate and negative charge $-Q$ to collect on the other plate.

If a battery has been attached to a capacitor for a sufficient amount of time, no current can flow through the capacitor. However, if a time-varying voltage is applied across the leads of the capacitor, a displacement current can flow.

- An ideal capacitor is characterized by a single constant value, its capacitance. Capacitance is defined as the ratio of the electric charge Q on each conductor to the potential difference V between them. The SI unit of capacitance is the farad (F), which is equal to one coulomb per volt (1 C/V). Typical capacitance values range from about 1 pF (10^{-12} F) to about 1 mF (10^{-3} F).
- The larger the surface area of the "plates" (conductors) and the narrower the gap between them, the greater the capacitance is. In practice, the dielectric between the plates passes a small amount of leakage current and also has an electric field strength limit, known

as the breakdown voltage. The conductors and leads introduce an undesired inductance and resistance.

- Capacitors are widely used in electronic circuits for blocking direct current while allowing alternating current to pass. In analog filter networks, they smooth the output of power supplies. In resonant circuits they tune radios to particular frequencies. In electric power transmission systems, they stabilize voltage and power flow.



Resistor.

- A **resistor** is a passive two-terminal electrical component that implements electrical resistance as a circuit element. Resistors act to reduce current flow, and, at the same time, act to lower voltage levels within circuits. In electronic circuits, resistors are used to limit current flow, to adjust

signal levels, bias active elements, and terminate transmission lines among other uses. High-power resistors, that can dissipate many watts of electrical power as heat, may be used as part of motor controls, in power distribution systems, or as test loads for generators. Fixed resistors have resistances that only change slightly with temperature, time or operating voltage. Variable resistors can be used to adjust circuit elements (such as a volume control or a lamp dimmer), or as sensing devices for heat, light, humidity, force, or chemical activity.

- Resistors are common elements of electrical networks and electronic circuits and are ubiquitous in electronic equipment. Practical resistors as discrete components can be composed of various compounds and forms. Resistors are also implemented within integrated circuits.



Voltage Regulator:

- A **voltage regulator** is designed to automatically maintain a constant voltage level. A voltage regulator may be a simple "feed-forward" design or may include negative feedback control loops. It may use an electromechanical mechanism, or electronic components. Depending on the design, it may be used to regulate one or more AC or DC voltages.
- Electronic voltage regulators are found in devices such as computer power supplies where they stabilize the DC voltages used by the processor and other elements. In automobile alternators and central power station generator plants, voltage regulators control the output of the plant. In an electric power distribution system, voltage regulators may be installed at a substation or along distribution lines so that all customers receive

steady voltage independent of how much power is drawn from the line.



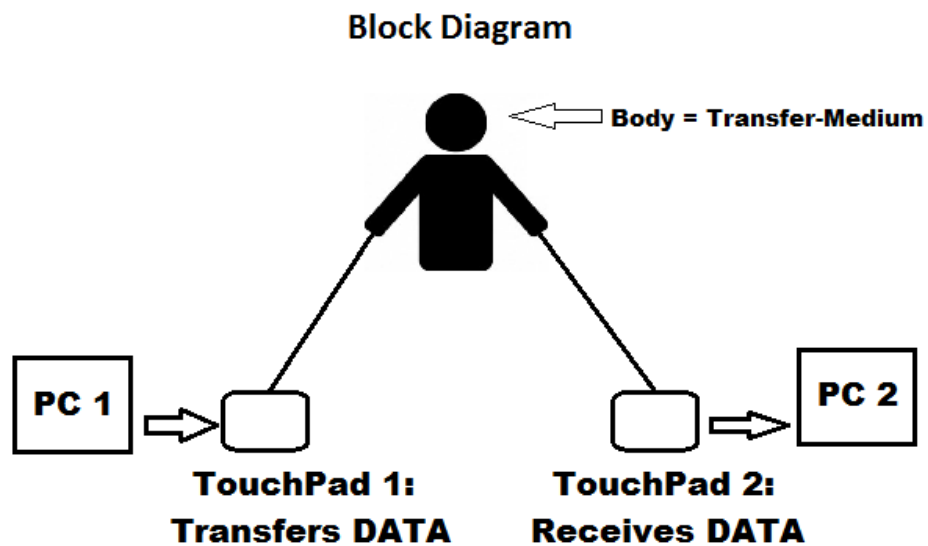
LED:

- A **light-emitting diode (LED)** is a two-lead semiconductor light source. It is a p-n junction diode, which emits light when activated. When a suitable voltage is applied to the leads, electrons are able to recombine with electron holes within the device, releasing energy in the form of photons. This effect is called electroluminescence, and the color of the light (corresponding to the energy of the photon) is determined by the energy band gap of the semiconductor.
- An LED is often small in area (less than 1 mm^2) and integrated optical components may be used to shape its radiation.
- Appearing as practical electronic components in 1962, the earliest LEDs emitted low-intensity infrared light. Infrared LEDs are still frequently used as transmitting elements in remote-control circuits, such as those in remote controls for a wide variety

of consumer electronics. The first visible-light LEDs were also of low intensity, and limited to red.

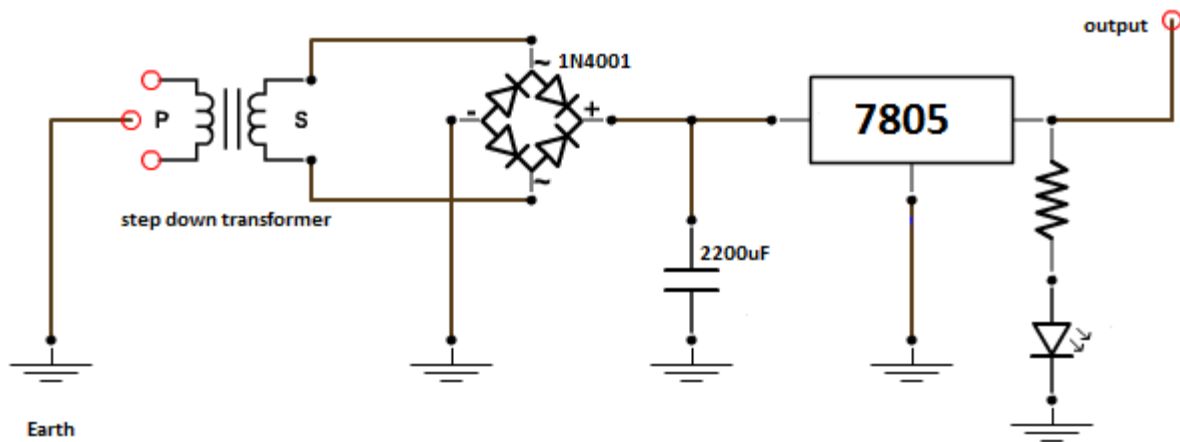
Modern LEDs are available across the visible, ultraviolet, and infrared wavelengths, with very high brightness.

BLOCK DIAGRAM:

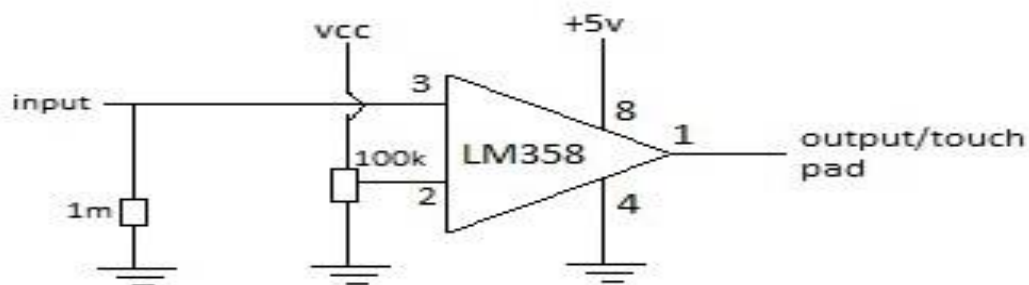


Circuit Diagram:

Transmitter :-



Receiver :-



Components:
1. LM358 op-amp
2. 100k preset
3. 1m resistor

Advantages:

- The Transfer of Data is simplified.
- Total Cost is Very Less.
- Can Be Used on Any PC with Windows.
- Requires No Internet.
- User-Friendly.
- More Secure As Compared to Other Hardware Which Are Used To Transfer DATA.

Future Scope:

- This Technology can prove to be a Boon in the Near Future, Because of its Several Use.
- We Can Make Touchpads Embedded in a Computer's Keyboard or At a Certain Place in all Our Devices or Laptop to Transfer DATA Seamlessly.
- We Can Also Make a Device Which Can Store the DATA in Our Palm and Then Later When we need it we can extract it to The Computer.
- With This Technology, The Cloud Service can be used to Greater Extent with the Collaboration of Touch PC's to detect a Person's Touch and Transfer DATA through Cloud but With Just a Gentle Touch from One Computer to the Other Computer.

Software Specifications:



C Sharp :

- **C#** (pronounced as *see sharp*) is a multi-paradigm programming language encompassing strong typing, imperative, declarative, functional, generic, object-oriented (class-based), and component-oriented programming disciplines. It was developed by Microsoft within its .NET initiative and later approved as a standard by Ecma (ECMA-334) and ISO (ISO/IEC 23270:2006). C# is one of the programming languages designed for the Common Language Infrastructure.
- C# is intended to be a simple, modern, general-purpose, object-oriented programming language. Its development team is led by Anders Hejlsberg. The most recent version is C# 6.0, which was released on July 20, 2015.