SWIPE CONTROLLER

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ABSTRACT:

Microcontroller is one of the most powerful general purpose devices which we are going to use in this project. Based on this we controlled power point presentation and media player with the help of pair of IR led photodiode. The sensor is used to sense the movement of hands and gives precise controlled output with speed and accuracy.

Swipe controller used to control Power point presentation and Media player two applications. By just swiping the hands in front the pair of sensors; the flow of pages of presentation or list of songs played will get controlled.For media player show your hand over the sensor 2 to play/pause the song. To stop the song shows the hand over the sensor 1. To play the next song just swipe the hand from left to right and to play the previous song just swipe the hand from right to left. The same swipe motion is used for power point control. Thus, this will be the working of swipe controller.

Keywords: Micro-controller, IR sensors, RS 232 cable, swipe (Hand Recognition).

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DEFINITION OF WORK:

Power point presentation is an interactive medium to communicate with large number of people. Using power point presentation any idea can be briefly explained rather than explaining orally. We can obtain suitable and quick solution to reaching maximum people through these PPT's in short time without the need of colleague.

It can also be used to control songs, audios or video which usually depends on personal interest by performing the functions like play, pause, next and back.

I.   INTRODUCTION:

The basic idea of the project swipe controller comes from touch screen mobile phone or any commercial purpose which needs paper presentation in our daily life which may be used in most of company and colleges. So, we designed a system which gives handy work over paper presentation and it makes easy for changing slides with better detection, moreover it makes easy while controlling music player. The working principle is simple, the user just has to move hand in front of IR sensor then make according to your hand position their change music & slide.

1.   Most of the time the paper presentation has to be done by two or more person hence more man power needed while delivering the presentation. Thus, to reduce the man power we are going to design simple, handy, economical and user friendly system named 'swipe controller'.

2.   Many of the research organization uses timer based machine which gives accuracy but consumes more energy.

3.   The latest swipe technology is available in most of the Android&Windows operating system based devices.

II.   LITERATURE REVIEW:

About decade ago, the idea of using touch-screen was presented as a new computer interfacing devices other than mouse or keyboards. Because of intuitive interactive with the user, touch-screens becomes famous in various application. Many conventional sensing technologies have implemented for an old fashion touch-screen such as piezo-electric panel, resistive or capacitive membrane, Infrared. Or a recently one such as SAW, DST, Strain gauge those mechanisms are very conventional and widely developing by many researchers, especially resistive and capacitive which are available in the commercial nowadays.

For many years, researcher have improved the performance of multi-touch by hardware and or software approach, however the sensor-based touch-screen can handle limited number of touches and improper for the multi-touch in larger scale such as a tabletop.

The computer-based touch-screen has a very rich of idea of implement an image processing to detect multiple fingertips' touch. For the purely-computer vision-based, it uses only camera to capture motion from the projected screen. The projection might be a front or rear one. Example of pure computer vision-based touch-screens is demonstrated by Microsoft's Play Anywhere which is mobile desktop interactive system.

The structure of FTIR is composed of LED and Infrared camera. The concept is the beam from LED which emitted to the screen will be reflected all until the index object touch the screen. The touched object cause the diffuse reflection read by infrared camera. FTIR has an advantage of very low cost for the multi-touch touch-screens and very famous for developer. FTIR structure is similar to DI structure, but DI has an advantage of ability to operate by motion of the hand without touching the screen. The famous DI works is known as Microsoft Surface.

In conclusion, the conventional sensor-based touch-screens are powerful and various used in commercial. The noticeable drawback of this kind of touch-screens is limitation of multi-touch and unsuitable for larger scale touch-screens. It's better to use the hardware interface for computer based control system for connecting system through actual world.
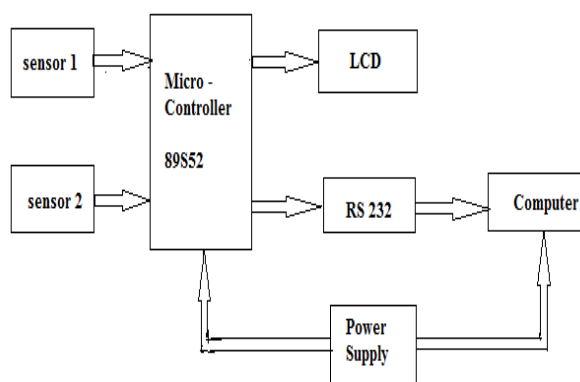
III.   PROPOSED BLOCK DIAGRAM:

Fig 1: Block diagram for proposed system.

The above block diagram mainly consists of the following units:

Microcontroller:

It is the head of the system. It is main controlling unit of the system. We are using the microcontroller AT89S52.

The AT89S52 is low power, high performance CMOS 8 bit microcontroller with 8k as in programmable flash memory. The device is manufacture using Atmel's high density non-volatile memory technology and it is compatible with industry-standard 80C51 instruction set and pin-out. The on chip flash allows the program to be programmed in system or by a conventional non- volatile memory programmer.

Sensors:

The two sensors which we are going to use in this system are pair of IR-led photodiode sensors which generally used in the obstacle detection purpose.There are two parts one is transmitter which emits the invisible infrared light and second part is photodiode; which receives the transmitted infrared light. For comparison purpose we are using the LM358 as comparator IC. These two sensors are directly connected to the microcontroller.

LCD:

LCD's can add a lot to your application in terms of providing a useful interface for the user, debugging an application or just providing it a "professional" look.

RS 232:

Used for connecting the hardware with the processor of the computer system. It uses the serial communication protocols for communication .For our hardware we are going to use the DB9 connector. The RS 232 is further connected to the controller via max232.

MAX232:

The MAX232 from Maxim was the first IC which in one package contains the necessary drivers (two) and receivers (also two), to adapt the RS-232 signal voltage levels to TTL logic. It became popular, because it just needs one voltage (+5V) and generates the necessary RS-232 voltage levels (approx. -10V and +10V) internally. This greatly simplified the design of circuitry. Circuitry designers no longer need to design and build a power supply with three voltages (e.g. -12V, +5V, and +12V), but could just provide one +5V power supply, e.g. with the help of a simple 78x05 voltage converter.

Personal Computer (PC):

PC is used as an instrument through which the operation to be performed ie. the change of slide of Power-point presentation, similarly the change of songs and perform several operations like play, pause is to be done. PC acts as an intermediate source between slides shown to others and presenter and change the song virtually.
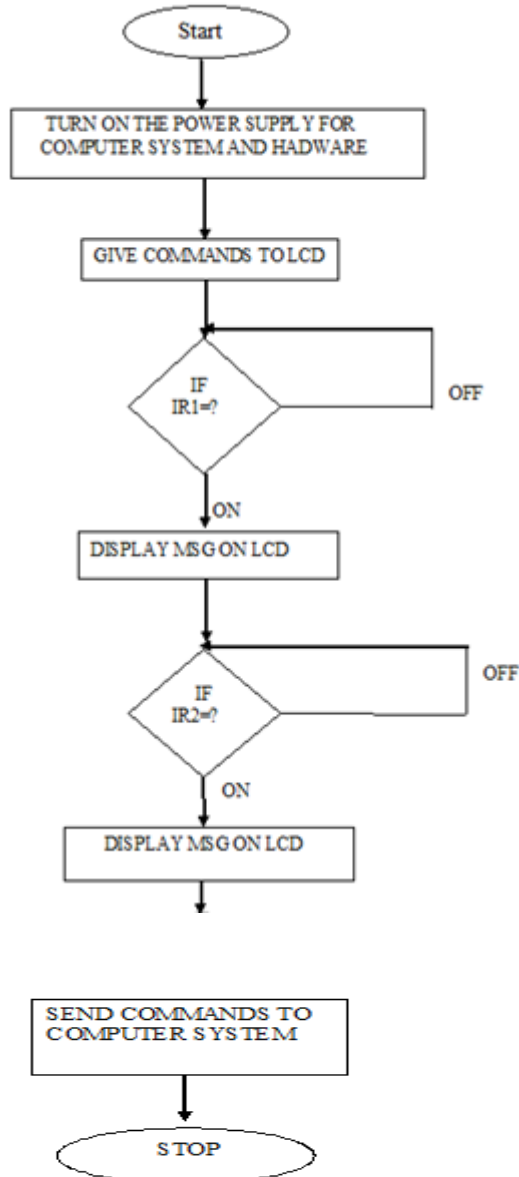
IV.   FLOW-CHART:

Figure 2: Flowchart of the working of Swipe Controller
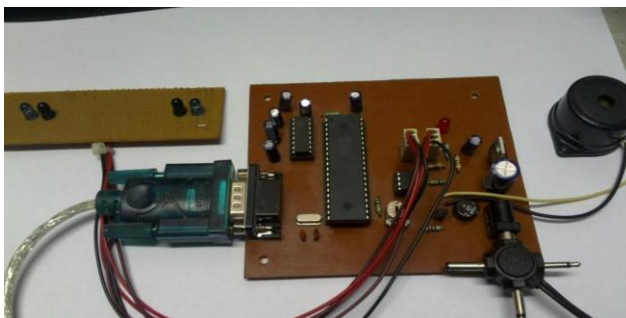
V.   RESULT AND ANALYSIS:

Figure 3: System implementation

It is observed that when the hand is swiped in front of sensor 1 and sensor 2 then corresponding operation is performed.

In case of Power-point presentation when the hand is mover from left sensor to right sensor then the back slide will be shown. Similarly, swipe the hand from right sensor towards left sensor then next slide will be shown.

In case of Window Media Player when the hand is mover from left sensor to right sensor then the back song will be played. Similarly, swipe the hand from right sensor towards left sensor then next song will be played. Moreover, if the hand is placed in front of right sensor then the media player will pause and play depending on the operation been performed at that time ie. If the song is played then hand is placed in front of right sensor then media player will pause and vice-versa.

VI.   CONCLUSION:

This project is based on swipe controller i.e. change of contents like next, back in case of Power point presentation whereas pause, play, next, back in case of media player. The main advantage of this kind of system is the ease and flexibility for user to perform task with optimum effort. Moreover, it is very convenient for the individual to perform task of changing the slide and perform some operations like changing, pausing and replaying the songs.

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