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Portable Wireless Device for Remote Writing on Board

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ABSTRACT: This project will enable a person to write on white board from distance by using portable wireless device. The Hand Held device consists of a touchpad, microcontroller, wireless transmitter and battery. The touch pad is interfaced with the microcontroller with the help of touch screen controller. The co-ordinates are sent to the receiver side end by wireless transmitter. At the white board side wireless receiver will receive data. Microcontroller will act as interface between wireless receiver and PC.PC being connected to Projector, will project this writing on the white board.

KEYWORDS: Touchscreen, Remote writing, Wireless, Electronic board.

I.INTRODUCTION

In India, traditional teaching scheme still uses chalk-blackboard approach. This traditional scheme has many disadvantages such as teacher has to approach the blackboard if he wants to explain his point with the help of a figure. If it is possible for him to write or draw on the board remotely i.e. without actually approaching the board, it will be convenient for him as well as students. Through this project we are trying to make this possible with the help of touchscreen equipped portable device. In addition to this, it also prevents harms caused by chalk dust to the teacher and students.The chalk, which is simply compressed dust, can bother some educators and students with allergies, not to mention land on top of other school equipment that is dust sensitive, such as computers and microscopes.

II.EXISTING METHODS

The most well-known, cheapest approach for teaching is the use of chalk-blackboard. The main disadvantage of this approach is harm caused by the chalk dust to the people around especially the children. In addition to this, it takes efforts to wipe off the writing on the board with the help of duster while with the system that we have proposed, it is possible with the help of single tap on the touchscreen.

Another method is the use of whiteboard and marker which doesn't include chalk and hence there is no harm caused by chalk dust. The disadvantage that has been often highlighted in case of a whiteboard is that it often causes contrast problems for people who have vision impairment issues. People who are left handed also face some problems when they have to write on the whiteboard as most left handers tend to smudge the content that they have already written because of the way they hold the pen and write on it.

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III.PROPOSED MODEL AND WORKING

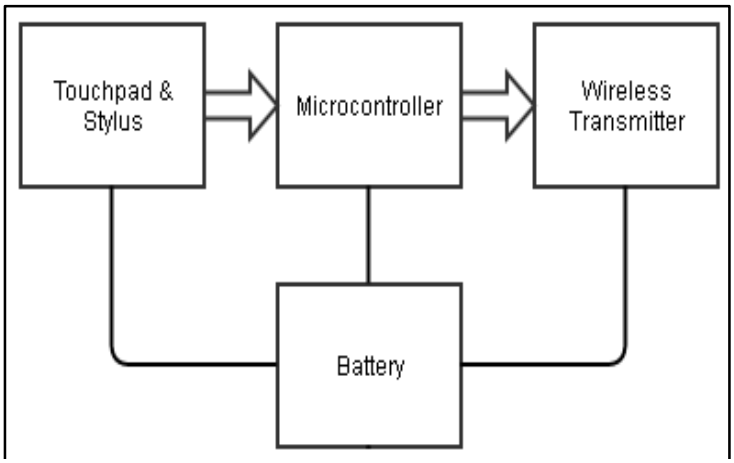

Fig.1Transmitter side

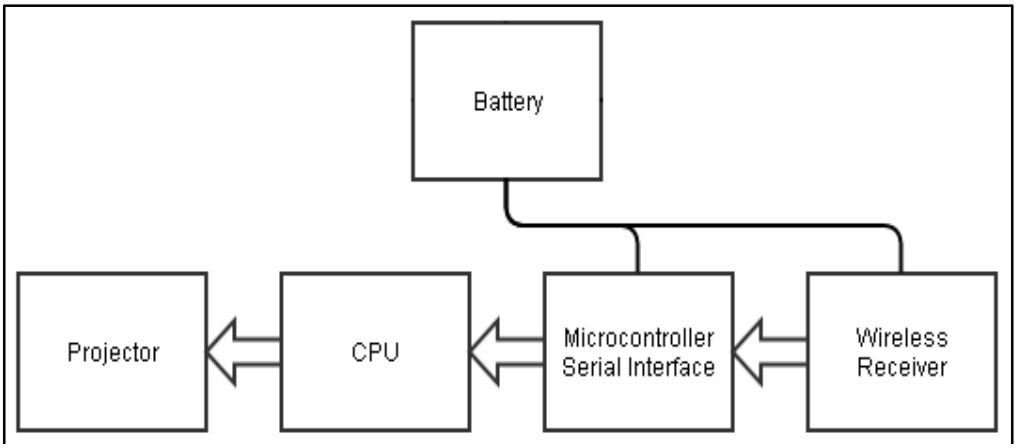

Fig.2Receiver side

The handheld device consists of touchscreen, microcontroller and cc2500 RF module.The touchscreen used here is 4 wire resistive touchscreen.
As we slide the finger or stylus over the touchscreen, specific voltage is generated across the 2 wires of touchscreen. This voltage is converted into digital form with the help of in built 10-bit ADC in ATMEGA8 microcontroller.
Different voltages are associated with different points on the touchscreen as illustrated in figure shown below-

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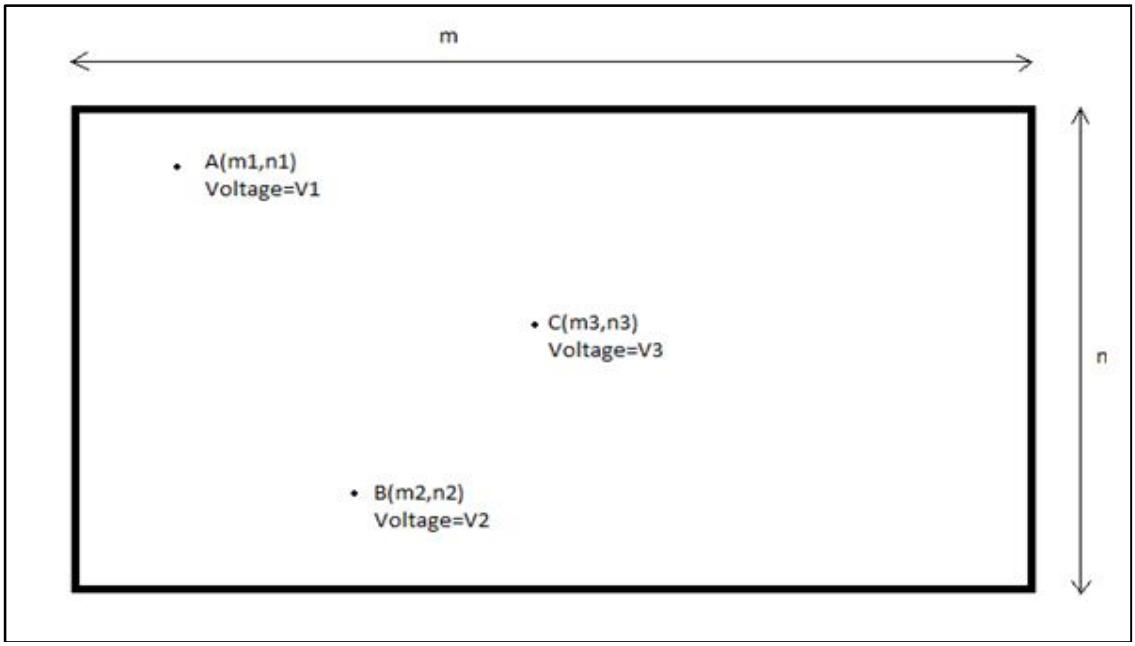

Fig.3Touchsreen coordinates and voltages

Now this data in digital form is transmitted with the help of CC2500 module which is interfaced with ATMEGA8. CC2500 at the PC side will receive this data and send it to the Visual Basic programme which is installed on the PC. In the Visual Basic software, the same pattern as drawn on the touchscreen of the handheld device will be drawn and projector will project this writing on the board.

IV.HARDWARE IMPLEMENTATION

1) Touchscreen- It is used determine the point of contact as we slide the stylus or finger over the screen.
2) Microcontroller-It is used to control and monitor various activities taking place while project is working.In this project we are using ATMEGA8 microcontroller.
3) Wireless transceiver –We are using CC2500 RF module (2.4GHz ISM band) for wireless transmission and reception of data between the handheld device and the PC.

IV.CONCLUSION

Thus in this paper we successfully implemented the system which will allow the person to write on the board from a distance (30 meters). We also overcame the shortcomings of traditional chalk-blackboard approach of teaching by replacing it with easy to use portable touchscreen device. This system can be effectively implemented in schools and colleges as well.

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