

Portable Wireless Writing Pad

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ABSTRACT

This project will enable a person to write on white board from distance by using portable wireless device. The portable 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 uVGA. uVGA being connected to Projector, will project this writing on the white board.

Keywords: PIC Microcontroller, GLCD, Touchpad, Zigbee, uVGA.

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I. INTRODUCTION

We often come across the problem faced during a business or group meeting and while teaching in a class when the person takes the meeting or teacher teaching in a class blocks the view of the fellow mates or students respectively.

During a business meeting, the person who is standing and giving the presentation on white board or projector often blocks the view of the people sitting on the either side of him. Thus what happens is that the coordination between listening and viewing the same is lost.

During a class also when a teacher draws or writes on the board, she blocks the view of the students and thus that flow is disrupted and continuity is lost. Also she is not able to keep an eye on the students which might lead to indiscipline from students' behalf.

Thus our project titled "Portable Wireless Writing Pad" aims towards providing a solution to this basic problem with the help of which a teacher can stand anywhere in the class and just write on the writing pad in her hands which will be projected on the screen for everyone to see. Similarly it will help in the group meetings also when the person giving the meeting might just sit in his place and demonstrate the matter.

II. EXISTING METHODS

The most well-known, cheapest approach for teaching is the use of chalk-blackboard slate pencil. The main disadvantage of this approach is harm caused by the chalk dust to the people around especially the children. It is possible with the help of single tap on the touch screen. 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, another method is the use of whiteboard and marker which doesn't include chalk or slate pencil 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 handlers tend to smudge the content that they have already written because of the way they hold the pen and write on it

III. PROPOSED MODEL AND WORKING.

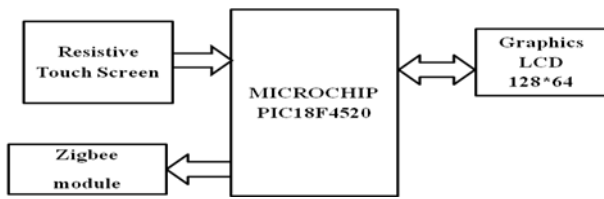


Fig.1: Transmitter side



Fig.2: Receiver side

The handheld device consists of touch screen, microcontroller and zigbee module. The touch screen used here is 4 wire resistive touch screen .As we slide the finger or stylus over the touch screen, specific voltage is generated across the 2 wires of touch screen. This voltage is converted into digital form with the help of in built 10-bit ADC in PIC18F4520 microcontroller.

Different voltages are associated with different points on the touch screen as illustrated in figure shown below:

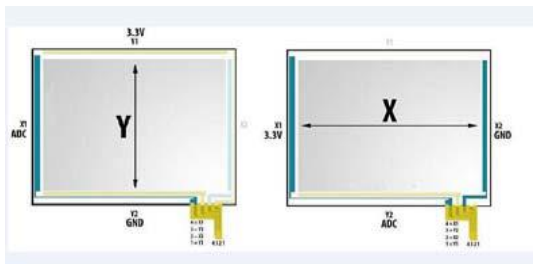


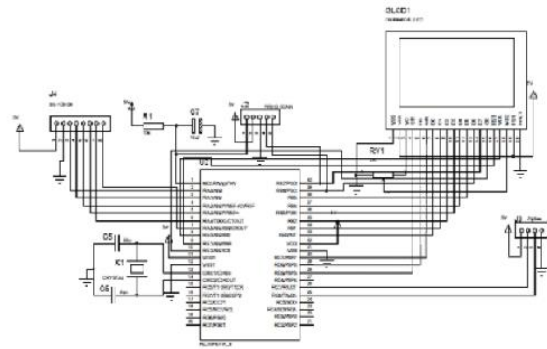
Fig.3: Touchscreen coordinates and voltages.

Now this data in digital form is transmitted with the help of Zigbee module which is interfaced with PIC18F4520. Zigbee at the receiver side will receive this data and send it to the uVGA. In the uVGA inbuilt PICASO microprocessor, so the same pattern as drawn on the touch screen of the handheld device will be drawn and projector will project this writing on the board.

IV. HARDWARE IMPLEMENTATION

- 1) Touch screen- 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 PIC18F4520 microcontroller.
- 3) Wireless transceiver –We are using Zigbee module (2.4GHz ISM band) for wireless transmission and reception of data between the handheld device and the uVGA.

V. CIRCUIT DIAGRAM



VI. FUTURE SCOPE

1. The project can be made more efficient by using a capacitive touch pad.
2. In this project we can add the feature of letter recognition.
3. By using gsm technique project can be more expanded.
4. Can provide memory element for showing the different file formats.

VII. ADVANTGES

1. Standalone system doesn't require PC support.
2. Even fingernails can be used for pointing.
3. Portable and wireless.
4. Multi-user interface.
5. Compact and hand- held system.

VIII. APPLICATION

1. It can be used in the classroom or any kind of group discussion.
2. It can be used a notice board to display instant messages.
3. Can be used to transfer data one to many or many to one mode.
4. With little more enhancements it can be used to analyze any statistical data through graph or pie chart.

IX. CONCLUSION

“Portable wireless writing pad” has been partially completed. The fully functioning product works essentially as specified in the project goals. Teacher can use touchpad during teaching in class. The output from the resistive touch screen is analysed on the basis of the voltage divider principle and then this output is interfaced with the microcontroller. Then this microcontroller's output is displayed on the graphical LCD after synchronization with touch screen and will also be transmitted using zigbee module. Zigbee module's output will be decoded back and then converted into VGA format to be directly displayed on the screen. This system can also use in business meeting and during group discussion.

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