An Apparatus And An Efficient Method For Converting Any Plane Surface Into Virtual Interactive Writing Board (SV WRITING BOARD) Using IR Sensing

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Abstract— Brilliant sheets with representation based interfaces makes figuring out how to be more dynamic inferable from the distinctive types of displaying data. These are costly to set up for presentations in classrooms, workshop corridors, and meeting venue. This paper displays a model that moves typical plane surface toward Smart Writing Board (SV WRITING BOARD) utilizing IR detecting. On this SV Writing Board, the marker makes ink strokes on the screen. Perceived ink strokes are supplanted by framework drawn components, and any remaining ink strokes can be deleted (at the same time). The acknowledgment procedure pace is further improved utilizing Concurrent Java through a parallel methodology.

Keywords- SV WRITING BOARD, touch marker, Interactive virtual board, Nintendo controller, intuitive whiteboard, IR detecting, projector.

I. INTRODUCTION

Marker and touch connections can possibly prompt more normal cooperation's for data representation. As exhibited by Hinckley et al., joining marker and touch can lead to intense new devices and offer connections that may feel more normal. Notwithstanding, such innovation remains underexplored by the InfoVis group. Generally, few InfoVis undertakings have examined portrayal based collaboration for information investigation without remarking on menus and catches, and a few others have centered on multi-touch tables. The touch screen innovation is not another innovation, but rather the advancement of new and better touch screens was marked ably long ways behind the advancement of customary screens. Today we have 24" shows with FullHD determination at a reasonable cost, however, we have toucheded delicate showcases with VGA determination at the same or significantly higher cost. This prompts a conclusion that this innovation is held for modern applications and realistic experts that can bear the cost of such costly gadgets. In this manner, because of the absence of examination on applying marker and touch collaboration to InfoVis, little is thought about how individuals would investigate information utilizing marker and touch. New touch delicate surfaces have developed as of late. This touch delicate foils can be set over the general screen, and with proper programming, and generally some additional equipment, we can get excellent showcases with touch affectability. The cost of such thwarts is much lower than the cost of showcase itself, however, the span of foils is typically 19" max. Likewise, their affectability to the touch is faulty, thusly they are typically utilized for guiding, once in a while for drawing. Once more, the size of this screens with foils is little, while their imperviousness to scratches is low. Propelled by the exploration that has researched the utilization of whiteboards as a reasoning medium and ketchVis, which uses marker-based association for the investigation of InfoVis graphs, we investigate a novel way to deal with InfoVis communication joining marker and touch for information examination on intuitive whiteboards. Our objective is to plan an interface for information investigation that offers cooperation's that minimize interface obstruction for the examiner and his/her thinking. To that end, we expand whiteboard capacities (including computational force, access to information, and touch collaborations) while saving the fundamental representation based cooperation's of non-advanced whiteboards (e.g., freestyle marker portraying). The term normal connections, as utilized as a part of the writing, now incorporates all associations that utilization diverse sorts of new innovation to empower individuals to join ordinary physicality into their communication. Being a piece of this expensive picture, we concentrate on investigating straightforwardly controlling visual components, utilizing attitudes learned in the physical environment and fortifying a man's attention on the errand close by while minimizing the ex-markers of working the interface.

II. LITERATURE

Audit of status of innovative workss in the subject

A.International Status: First Interactive Writing Board (IWB) was produced in the year 1991 by Xerox Parc, the fundamental explanation for this improvement was to use in the office for leading little gathering gatherings and

round tables. Ecole Louis de Broglie, Department of data, France (1999): This paper examines about the system which is advanced from the combination of present camera models consolidations beam method and post-preparing procedure. A relationship is communicated between the focuses in the 3D watched the scene and comparing pixels of IR feeler yield picture. The proposed technique utilizes material science laws to discover numerous out varieties, for example, spatial, unearthly and fleeting measurements. Regardless of the possibility that any picture is not entirely shaped over the screen then additionally, these material science laws are adequate to figure out the impacts of engineered picture. John Barrus, Edward L. Schwartz, CA USA (2005): CBRP was presented, the CBRP permits client and manager access for sound conferencing with shared remote drawing action, pictures are caught into the framework on the premise of marker stroke over the board, information can be extricated from the framework if a photo is drawn as same as the photo present in database, naturally the photo's drawn from marker's changed over into the photo from framework. Matijevics Polytechnical Engineering College of Subotica, Subotica, Serbia(2007): In this methodology microcontroller feelers was utilized. Microcontroller feeler measures the separation of words or anything composed over the plane surface with individual to any inside point on the screen. What's more, contingent on the diverse measurements acquired with the assistance of microcontroller feeler their yield is put away in the framework. Jun-Seok Park POST-PC Group, Electronics, and Telecommunication Research Institute, Korea (2007): It catches the information composed of any surface and exchange them to uni programming running on the same windows PC that was sending the live picture to a projector. Dwindle Brandl, University of Applied Sciences Hagenberg, Austria (2008): In this paper specialist portrayed about the bimanual method which can be actualized for the collaboration reason. In prior days, individuals used to utilize a single method for communication bringing about fewer information data transmission. After, the advancement of this innovation scientist examined about the marker and touch the most proficient method for bimanual collaboration over the other bimanual method for connection marker and marker and marker and touch.Nathalie Henry Riche, and Sheelagh Carmarkerdale (Dec. 2012): In this paper a mechanical assembly was created with the components like portrayal based communication, additionally permitted the choice of selecting any capacity with the assistance of move and customize notwithstanding picking any capacity by clicking on the menu and catches. If there should arise an occurrence of SketchInsight the client simply draws the required picture over the plain surface and applicable picture present in the database will supplant the drawn picture. Dustin Wuest ¨ Department of the Informatics University of Zurich Switzerland: In this paper FlexiSketch apparatus was made which is a versatile device utilized for making model-based reusing so as to draw of free shape outlines the charting documentations on the fly. Numerous clients can cooperate on the same model.Clemens N. Klokmose, Aarhus University, Denmark: The hindrances of past electronic sheets were talked about, for example, anything composed of a board will stay there until and unless it has been whipped. The prior electronic sheets had less life compass. For examining every last point the screen must be whipped over and over and drawings were attracted identified with the subject to be talked about in meeting which brings about exercise in futility.Björn Hartmann2 University of California, Berkeley: A dazzler was utilized to show the substance of the regularly shared show and permitting every one of the individuals present in a meeting to straightforwardly get to the information and change it. Things that were shared over the meeting were utilized as a wellspring of motivation

Fig.1. - Figure outlining how dazzler's were utilized as a part of a meeting

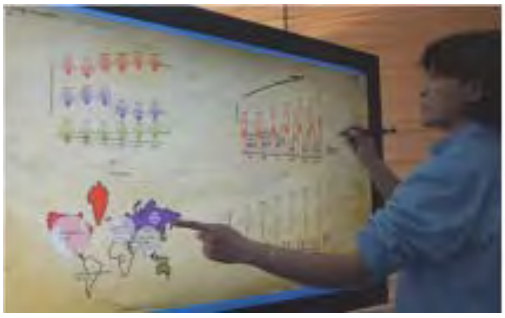
D Sheelagh Carmarkerdale, University of Calgary, Alberta: In this paper a study was led to acquiring the insight around a picture drawn on the screen and after that from that photos we determine the human inclinations, the study on human cerebrum is led by getting the points of interest from a photo drawn over the screen. This was essentially utilized as a part of online networking. An intelligent surface was made where the photos were drawn.

Rubaiat Habib Kazi, Nat. Univ. of Singapore(2013): Visualization is a standout amongst the most imperative undertaking in portraying a story or clarify a theme in a meeting, for that an information empowered framework

was composed which is straightforwardly associated with the wellspring of database, with the assistance of which information graphs can be drawn rapidly on the premise of little indications gave by the client on the intelligent screen. By utilizing the portrayed mechanical assembly client can even move and resize the information outlines with a slight touch,

(a)

(b)



(c)

Fig. 2. Storyteller portraying a story to a group of onlookers: (a) Some indications are drawn by the storyteller

for clarifying the entire picture, (b)On the premise of insights a harsh picture is drawn, and (c) Explains the gathering of people with the assistance of picture.

Jagoda Walny Innovis Group, Interactions Lab University of Calgary, AB, Canada(2014): In this paper an exploration was done that spotlights on comprehension about the representations drawn from intuition and acquired one of the best routines out of the specified systems, and utilized that technique to upgrade the collaborating so as to work on the present strategy diverse strategies. The methodologies utilized are more information driven.

Bongshin Lee, Petra Isenberg, Nathalie Henry Riche, and Sheelagh Carmarkerdale(2012): In this paper diverse Information Visualization advances were utilized and talked about how we can improve these frameworks, in order to diminish the separation in the middle of human and innovation. Real regions on which more work should be possible were: Thinking past the utilization of mouse and console, creating frameworks that are more touchy to expression comprehension, talking about how a man gets influenced by the people groups living around him/her.

Fig. 3. - Sketch drawn utilizing VLS

Andrew Vande Moere, Harald Reiterer(2011): In this paper a liquid cooperation system is advanced in the wake of examining diverse routines for data perception. Ease representation is an intense errand to be executed *in any* framework and even very little research has been doing here. While fabricating a powerful framework utilizing liquid connection is an intense assignment however by utilizing some quality feelers as a part of the framework we can bring this liquid intelligent framework into reality.

The Anthony Tang University of Calgary, Tobias Hesselmann OFFIS Institute for Information Technology(2009): An expansive presentation surface is given utilizing marker and touch communication administration. The framework is self-fit for classifying the same sort of information into diverse information stockpiling part. Distinctive duplicates of information are made for a gathering of people groups assembled for a meeting such that they fell that they are working straightforwardly on the primary database and after the leader of the meeting confirms the information, information gets put away into the principle database and other individuals keep dealing with the common assets.

Michael M. Hackett Philip T. Cox, Dalhousie University Halifax, Nova Scotia, Canada B(2009): In this methodology an input was led on a gathering of individuals for existing visual programming dialect, the capacity to utilize different fingers in spite of utilizing a solitary finger or a cursor advances the innovation. Appropriate testing of gear's must be finished by an arrangement of the client. The further research was continued the ideas identified with zooming, overview+detail, following information. Bimanual association with framework has been given more significance over single touch routines.

Fig.4. - Bimanual Touch

A. National Status

D Chaudhari Seema Rả, ÀCSE Department, MIT College of Engineering Aurangabad (2008): In this paper a minimal effort hearty framework was utilized which worked with the help of IR camera, smaller than expected projection framework and halfway hand wearable frameworks. The framework demonstrated that touch detecting works extremely well in any sort of surface. The primary concern to be remembered while setting up the framework is the correct situation of the camera, projection framework, and wearable gadget.

Prof. Sonal Patil, Department of Computer Science and Engineering, G.H.Raisoni Institute of Engineering and Management (2011): This task proposes another extensive surface multitouch framework, it utilizes just a solitary exceptional camera, smaller than usual projection framework and fractional hand wearable framework, which is anything but difficult to set up and has low section taken a toll. This model framework demonstrates that the touch detecting is extremely hearty and works immaculately any surface including non-level surface

Vasuki Soni, Mordhwaj Patel, Rounak Singh Narde, Department of Electronics and Telecommunication Engineering National Institute of innovation, Raipur (2013): This paper essentially accentuation in the field of town instruction. It examines about the arrangement identified with multi-touch boards which help in instructing town understudies. Principle objectives that were engaged are diminishing force utilization, great quality instruction, making the study as a good time..

III. PROPOSED METHODOLOGY

In the proposed paper we have presented a method that empowers us to make any plane surface as a touch delicate one. We can center and track the glowing light using so as to radiate marker the glowing camera that is begun from the Nintendo controller. With the assistance of fitting setting of the equipment and programming, we can change any plane surface into the unstable one. In this we change the glowing light discharged by the marker into the cursor development which we will unite with the Nintendo controller and this association is made by the Bluetooth. By utilizing this system, we can change any plane surface into the keen touch touchy one effectively. This innovation is not extremely costly for the classrooms that have projectors for the instructing reason.

A. Brief Description of The Drawings:

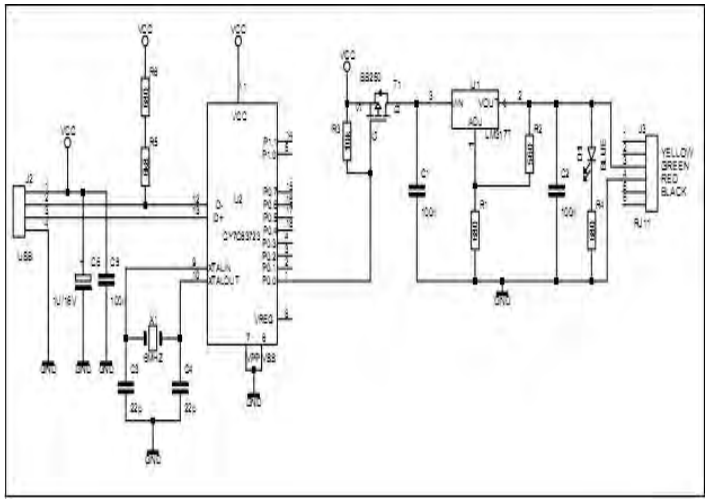


Fig.5. - By means of the USB information association, the Delcom microcontroller (U2) gets information and deciphers the order from

Wiiscan to an on/off sign. This sign is bolstered to the entryway of the P-channel MOS FET transistor (T1) which is the genuine switch that turns the ability to the Ninetendo controller on/off.

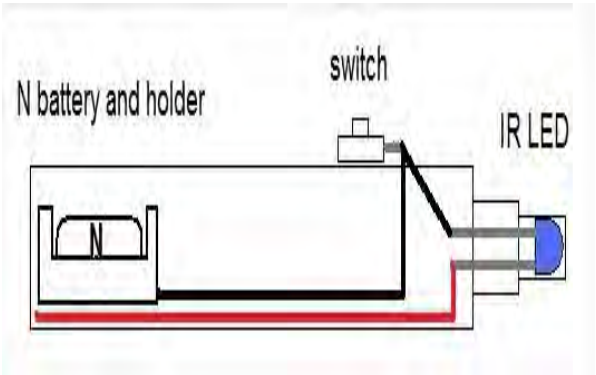


Fig. 6. - IR LED - forward inclination is <= to 1.5 V, 1 transient switch, 1 AA or AAA battery.

B. Detailed Description of The Invention:

The structural engineering of our touch delicate framework is having two equipment segments included specifically Glowing marker and Nintendo controller. The product that we use to join this two equipment must be effective in each way, the product ought to be straightforward and ought not to set aside much time to begin. We are utilizing the battery power for the IR marker. The IR marker ought to be of the simple grasp and ought to be coordinated effortlessly into any environment. The Nintendo controller that we are utilizing as a part of our innovation can catch the movement. This assists the client with getting interfaced with the screen and the

client can control the substance of the screen with this marker. This marker can likewise be expandable. Ninetendo controller contains the Bluetooth connector and camera determination.

We can join the Ninetendo controller to the PC framework for centering the indicating of glowing light and make the co-ordinates noticeable of the PC on the screen. This association of Ninetendo controller and PC is by means of Bluetooth.

You are allowed to compose on the plane surface when the IR marker is arranged at first glance. When you drag the IR marker over the plane, this IR light is being perceived by the Ninetendo controller which is on the left half of the projection surface. This camera catches everything composed on the plane and after that, its modernized picture can be seen on the plane surface. These outcomes are astonishing in light of the fact that thusly you can supplant the costly electronic load up by any plane surface. For changing over any plane surface into an electronic load up you simply require two more things, in particular, the IR marker and Ninetendo controller and you can see the outcomes.

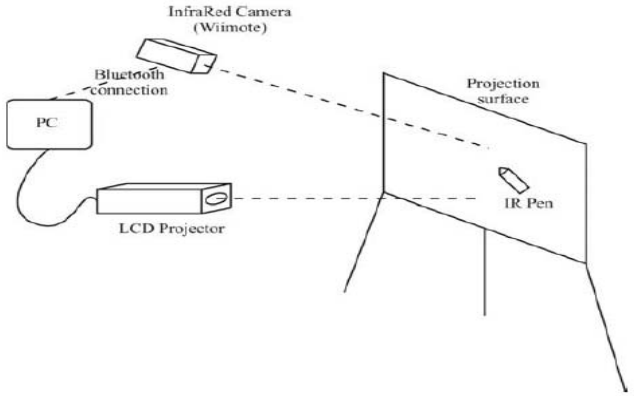


Fig.7. - Describes how the system works.

C. WORKING:

1. Working Example 1

Consider a case in corporate sector where we want to make a direct access to cloud during a meeting as well as maintaining the security of not losing the important data present in cloud, in that case, we can use IWB with IR feelers that delete whole data from the screen on a single wipe also the data can be created from a scratch. The system can be used for sharing notes during a meeting or after the meeting in printed or electronic for

2. Working Example 2

Consider a user want to share drawing or present a perfect digital bar chart, graph with a scratch on the whiteboard in that case the IR feelers captures the scratch made over the screen and replace the handmade drawing made by the user into a relevant bar chart, graph or some other form of drawing as equivalent to the picture drawn on the whiteboard or any other surface.

3. Working Example 3

Consider a situation where a user don’t have any surface like whiteboard which can be used to project the data from projector, in that case, the proposed model can be used as it can convert any surface into an Interactive whiteboard by sensing the content using IR feelers written over the surface with the help of IR marker’s.

IV. RESULTS

Our framework utilizes a mix of the marker and touches communication, which can likewise minimize mode-exchanging. The marker makes ink strokes on the screen. Perceived ink strokes are supplanted by framework drawn components, and any remaining ink strokes can be eradicated (at the same time). We settled on this decision to give input about which strokes were perceived and to improve the study execution so that the wizard did not need to oversee ink strokes. At the point when members touch the screen, SketchInsight shows orange "blobs" that demonstrate where touches have been perceived. We utilized this to pass on touch data to the wizard, however, it was likewise useful to members as input when they touched the screen. Additionally, we didn't recognize quantities of touches, so any motions could be performed with one finger or each of the five.

V. CONCLUSION

In this paper, we have shown and implemented the technique of converting any plane surface into a touchy one. The design and implementation of this technique are very simple and easy to understand. This system can be established easily in any classroom provided with a projector. The system will not take much time to setup as it has an easy implementation, start-up, and placing, we can make this system with an appropriate improvement

and arrangement, with this improvement we can convert any plane surface into a touch-sensitive. The size of the surface is not limited to this system, also, in the current Operating systems, the multi-touch technology is supported. So by using this marker and touch combination we can make an interactive system that is cost effective, easy to use and implement and infrastructure of the system need only IR marker and a camera means easily available.

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