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RESEARCH ARTICLE

Accelerometer Based Mouse

Prof. M. M. Khaladkar, Asha.H.Jadhav, Kalyani.S.Jadhav, Mayuresh Tambe

ENTC DEPARTMENT, ICOER, Pune, INDIA

asha2828@gmail.com, kalyani3161@gmail.com, mayur8601@gmail.com

Abstract—

In modern electronic period humanoid processor interfacing apparatus is a key part .In computer to play games motion gratitude can be well introduced. To get lively or still hastening outline of movement in this effort modest inertial device like accelerometer can be use even replace 3-D object. Human computer borders system is obtainable in this paper. One of the common interfacing system which will be act as an enhanced version, another to interact with computer in this research. In computer, for arrow control in reply to accelerometer drive is developed. RF mouthpiece gets the signal from transmission end and moved to computer finished MAX232 serial message. Accelerometer is connected with AVR ATMEGA 16 for ADC and AVR AT MEGA 16 are connected with LCD for showing the co-ordinates(x, y) in which the accelerometer move and further connected with RF transmitter which is rummage-sale to transmit the wireless signal to RF.

KEYWORDS -Accelerometer, PIC Microcontroller, RF Protocol

I. INTRODUCTION

The basic aim behind the project is to able to sense the drive of user hand and application to switch the drive of mouse on screen. For bodily challenged person is very useful. It's another use gaming. An accelerometer events the hastening it experiences relative to freefall. Single- then multi-axis replicas are obtainable to notice greatness and way of the hastening as a course amount, and can be rummage-sale to sense location, shaking and shock. Accelerometer expedient is used for detecting hand movement. The need of the research work is to get well known about the option of creating a wireless mouse that could be application by anyone, anywhere, without consuming a flat superficial to move it. For sense slant in any way accelerometer expedient is used production of accelerometer is AC. The production of accelerometer is AC and the accelerometer production is relational to the rate of acceleration vary and the acceleration are directly proportional to the degree at which device velocity change. The Microcontroller acts as the component that helps to put forth the instructions on to the computer for the mouse pointer to abide by the given instructions and the built in program help to decrease the complications of the coding and allows the interpretation to be done.

II. LITERATURE SURVEY

Physically dared people like water, food and medicine and to control electrical device like bulb fan by using switch button and also micro electro motorized MEMS to his figure or hand. New times contribution tool accelerometer based mouse can be treated. Outside laptop have not increased momentum and with the laptop many processor users typically carry USB mouse for laptop trace pad mouse as well as the twig mouse have been proposed. Two major vicissitudes to the mouse since it's start and these vicissitudes (PS/2, USB and wireless) but the border technique are not alteration and more button. Provides the worker with better comfort of use in its feel this future expedient is extra accepted. Sensor (MEMS), noticing the tilt this is an very sensitive sensor. This process is entirely driven by wireless technology and

convenient device. Control it by leaning up, left, down, right respectively when customer can attire the MEMS to his finger or hand.

III. BLOCK DIAGRAM

The block drawing consist of transferring and getting module. Conveying unit alienated in dissimilar element, influence supply unit, LCD (16*2) display unit, microcontroller unit accelerometer and conveying unit and regulator supply, getting component, MAX 232, DB9 connecter these are getting part is integration. A wireless humanoid processor borders for regulatory the processor mouse cane is wireless humanoid processor borders for regulatory the processor mouse baton is industrialized in this project. In our project, we use accelerometer sensor ADXL335 which is three dimensional sensors. The ADXL335 is a minor, thin, low control, whole 3-axis accelerometer by signal trained power outputs. The creation events acceleration with a minimum full-scale range of ± 3 g. It can amount the still hurrying of importance in tilt-sensing requests, as healthy as lively acceleration subsequent after gesture, tremor, or shaking. The AVR core blocs a rich teaching set by 32 overall drive employed registers. All the 32 lists are straight linked to the Mathematics Reason Component (ALU), letting two self-governing lists to be retrieved in unique solitary teaching executed in unique timepiece series. The subsequent building is additional cipher well-organized though attaining amounts awake to ten eras earlier than conservative CISC microcontrollers.

Transmitting unit:

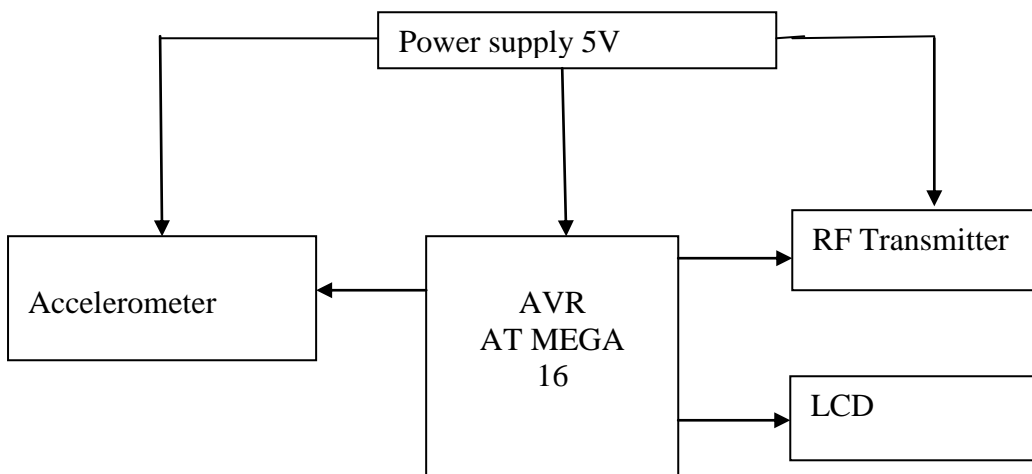


Fig1: Figure Of Conveying Unit (Transmitting unit)

Receiving unit:

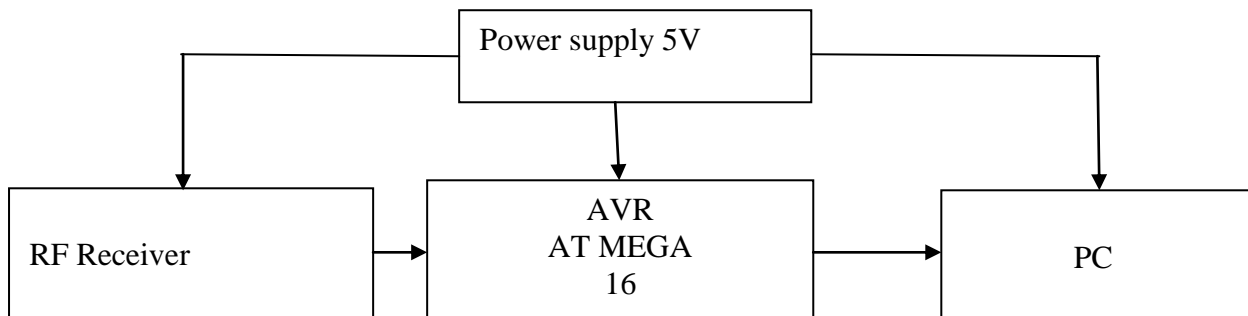


Fig2: Block Drawing Of Receiving Unit

IV. BLOCK DIAGRAM DESCRIPTION

This block diagram contains two module conveying and getting shown in figure. In this plan a wireless human PC borders for supervisory the processor mouse cursor is industrialized. Transmitting module separated in diverse unit, influence supply unit, microcontroller unit, LCD (16*2) display unit, accelerometer and conveying unit and getting part

is an addition of control supply, getting unit, MAX 232, DB9 connector. In transmitting part accelerometer can be rummage-sale to get the drive of user wrist to move cursor of mouse or Gyroscope to even rotate 3-D object. Accelerometer sensor are used methods the level of accelerometer where it is equestrian this enable us to measure tilt of a platform with admiration to earth axis, then then analog output of accelerometer in (x, y) plane is applied to microcontroller(PIC16f877A), which is rummage-sale to switch the show on LCD and also linked with RF transmitter. Microcontroller is eager by 5V control supply. LCD is second hand to display co-ordinate in which the cursor drive takes place and the RF teller are rummage-sale to convey the sign to headset unit which receive the signal send by transmitter and then this signal is practical to MAX232. MAX232 is used though interfacing microcontroller with PC to verify the Baud rate and changes the voltage near since microcontroller is TTL friendly, where as PC is CMOS friendly. MAX232 attach the microcontroller and PC through feminine DB9 pin. In PC an request is advanced which is usage to work the mouse in reply to the accelerometer tilt.

V. FLOWCHART

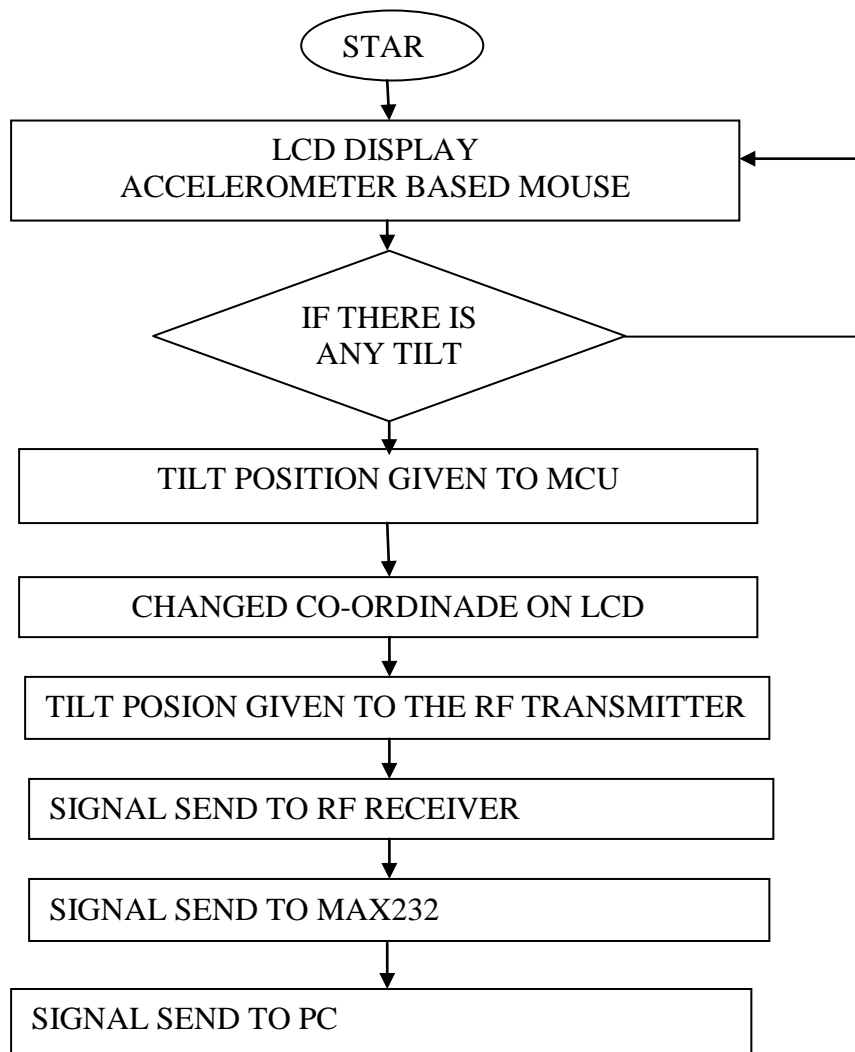


Fig3: Flow chart for cursor control

VI. ALGORITHM

1. Acquisition of Accelerometer co-ordinates
2. Displaying co-ordinates on LCD
3. Sensing Tilt in acceleration sensor using sudden change in co-ordinates
4. If there is any tilt
5. Finding Direction of Tilt Upward Downward Left Right
6. Transmitting control signal on Transmitting RF Module
7. Receiving Control signal through Receiving RF Module
8. Acquiring Control Signal in Matlab
9. Moving mouse pointer in according to established signal

VII. ADVANTAGES

A] It Provides user friendly human machine interaction:

Accelerometer mouse is an interactive and an alternative for persons who do not poverty to usage conservative HCI (human computer interface) or not talented to use conservative humanoid computer border and this attained by using a sensor accelerometer base on human wrist or anywhere in human body.

B] Maximizes speed of interaction with machine:

Number equations consecutively with equation numbers in parentheses hardware and giving direction to cursor. As it requires fewer time to proceed hence automatically speed will increases

C] Less complex: Complexity surges when we interface big quantity of circuits to system. But in our scheme we only usage the accelerometer sensor, microcontroller and RF unit to convey and obtain signal. This interfacing is reliable and not requires more amounts of sensors or units so it is less complex.

D] Less expensive: As our design is less multifaceted and requires less components the scheme cost will be reliable and hence the mouse will less expensive.

VIII. APPLICATION

A] Human Computer Interaction.

B] Can remain used as object drawing.

In this scheme humble inertial navigation sensor like accelerometer container be use to get Lively or Still hurrying profile of energy to move mouse pointer or even rotate 3-D object. In our paper a humanoid processor borders system is obtainable, which will be talented to act as an improved form of one of the greatest shared interfacing system, which is computer mouse direction. Computer for persons who do not poverty to usage conservative HCI (human computer interface) or not talented to use conservative human computer border and this attained by using a expedient accelerometer mount on human wrist or anywhere in human body.

IX. RESULT

In our project, to detect the stationary or lively change in position accelerometer device used. Cursor position changes If there is certain tilt in accelerometer in reply to that slope and location of (x,y)coordinate and location of mouse pointer on processor shelter that is left-hand, correct, up, depressed direction.



Figure 4: Shows the Direction and Co-ordinates of Cursor

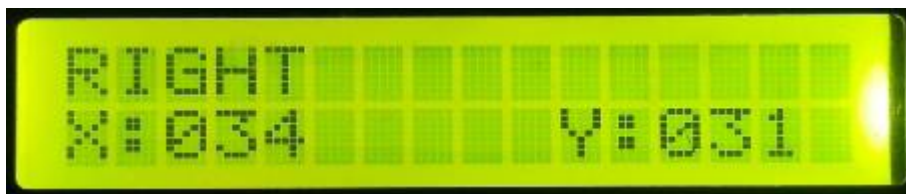


Figure 5: Shows the Direction and Co-ordinates of Cursor

X. CONCLUSION AND FUTURE WORK

To process mouse cursor this project is recycled to this an accelerometer sensor is used. Surroundings noise is not logged and so it does not delay with a user regulatory an tool or device. In the market, we do come across gaming consoles that allows hand gestures to be recognized but it is still not used as a system of interfacing and can be used to replace the simple mouse that we use normally. In the near future, as we are observing that the interfacing is gradually being taken to the next level of being 3 - dimensional so we intend to make our system being able to incorporate in a system that is compatible to be used in the 3 – dimensional paradigms.

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