



DESIGN AND IMPLEMENTATION OF HAND GESTURE RECOGNITION USING PHYSICALLY CHALLENGED PEOPLE

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ABSTRACT:

The fundamental point of the undertaking is to execute a minimal expense solid framework which will assist with setting up correspondence between crippled or debilitated patients and an attendant. A patient can undoubtedly send messages to the medical attendant simply by shifting an accelerometer associated with a body part fit for development. This point of slant is shipped off a focal regulator which then, at that point, starts correspondence between the patient (transmitter) and attendant (collector) and furthermore concludes which message is to be sent dependent on the slant point accelerometer as the primary piece of our venture. It is the gadget which is utilized to identify the movement. We will put the accelerometer on any mobile body part of a genuinely tested individual. In the event that he got some issue, he will move the body part which contain accelerometer specifically bearing according to the programming. Gadget will identify the movement and will give a result sign to the Arduino Uno. Arduino will identify input according to the programming accomplished for the course of accelerometer. Every quiet will have such a gadget introduced close by his body and all such patients will be midway connected to the beneficiary at the medical attendant side. Alongside this a continuous medication update and a crisis bell to improve on crafted by the attendant was executed. Yield is displayed on LCD just as recorded voice with the assistance of voice recorder and playback apr33a3. Our undertaking gives a dependable, powerful and straight forward yet significant answer for different issues looked by medical attendants in generally speaking with crippled patients.

Keywords: Arduino uno, Accelerometer, Audio playback recorder, patient communication, RF module.

INTRODUCTION:

Among the huge number of progressions done in the clinical area, not very many really center around assisting patients with handicaps to convey. In spite of the fact that checking frameworks make it simpler for specialists to gather and notice a patient's vitals, there aren't numerous choices for genuine verbal correspondence for incapacitated patients. Here we propose a straight forward yet successful method for taking care of the issue of genuinely impeded or incapacitated patient. The primary design is to supplant the regular methodology of patient-nurture correspondence with present day advances that give a lot quicker and dependable method for doing as such. In the current situation, the patient must be reliant upon a relative or generally a medical caretaker the two of which need to take care of the patient continually. Objective of this technique is to make such patients free to speak with the medical caretaker by the straightforward errand of shifting a gadget situated on his finger or some other piece of the body that is equipped for development. Later the patient sends the message the attendant can remotely screen their solicitations and give help right away. These days, a ton of dynamic exploration is occurring in the remote field and extremely less in its public executions. Part of methods has been contrived for detecting the hand signals and doing the fitting activities.

A method dependent on glove is a well known method of perceiving hand motions. It utilizes a sensor connected to a glove that recognizes hand developments. The client needs to have a sending gadget on his hand which comprises of a sensor, i.e., 3-hub accelerometer. Development of the hand a specific way will send an order to the LCD screen which will then, at that point, show the data determined in course. The communicating gadget comprises of a Comparator IC for appointing appropriate levels to include voltages from the accelerometer and an Encoder IC whose capacity is to encode the four bit information and later that it will be sent by a RF Transmitter module. In this day and age populace is expanding quickly. So there is a requirement for appropriate medical care habitats which should be all around kept up with and created. It not just decreased portability of patients from one ward to other yet additionally expanded weight on patients. Likewise it burns-through more space and has more power utilization. Besides in emergency clinics bedside patient checking is done which permits different patients in a single room. This causes aggravation as well as establishes the framework of patient observing framework. Patient observing is done at individual level. In one room one patient is there and different patient physiological boundaries are estimated separately. If there is by all

accounts a crisis, a caution framework which is at collector side illuminates to the medical attendant and the specialist. The client needs to have a sending gadget on his hand which comprises of a sensor, i.e., 4-hub accelerometer. Development of the hand a specific way will send an order to the LCD screen which will then, at that point, show the data indicated in bearing. The communicating gadget comprises of a Comparator IC for relegating appropriate levels to include voltages from the accelerometer and an encoder IC whose capacity is to encode the four bit information and later that it will be sent by a RF Transmitter module.

II.LITERATURE SURVEY:

1.Connor, Stephen B., Timothy J. Quill Mixture rates requested of the implantation siphon in numerous PC controlled medication conveyance applications are made to change at stretches a lot more limited than those experienced under routine clinical use. The reason for this review was to approve the volumetric exactness of three economically accessible implantation siphons working in a requesting PC controlled application. In free 2-h assessments, the implantation rate requested of each siphon changed as frequently as each 5, 10, or 15 s involving a calculation for PC controlled pharmacokinetic model-driven intravenous imbue. Precision of the mixture not really settled gravimetrically. At all estimation times, every one of the mixture siphons was precise to inside around $\pm 5\%$ of the normal volumetric result under every one of the implantation rate spans tried. Stream rate precision of $\pm 5\%$ is equivalent to the ostensible expected exactness of these mixture siphons in ordinary clinical use.

2.Goepel, Ernst. An ink-drop sensor has been created for use in ink-fly printers so the capacity of the multi spout print head can be checked prior to printing begins or consistently during printing. Assuming the sensor identifies that at least one spouts have fizzled, the print head can be reestablished to address activity in an assistance station. This cycle, which is totally programmed and requires no intercession with respect to the client, builds the unwavering quality of the ink-stream printer. The sensor standard uses the electrical conductivity of the ink. At the point when ink beads from any spout in the print head are catapulted onto brush like anodes, conductive connections are set up between the prongs of these cathode brushes, and changes in obstruction can be estimated at the sensor terminals. These progressions in opposition are then changed over in a sign molding circuit into computerized voltage signals. The creator additionally examines altered renditions of the sensor appropriate for exceptional applications, for example, estimating the flight season of ink beads and deciding print position mistakes.

3.Sankaranarayanan, Sriram, et al We present a model-based way to deal with combining insulin mixture siphon use boundaries against fluctuating supper situations and physiological conditions. Insulin mixture siphons are regularly utilized by type-1 diabetic patients to control their blood glucose levels. The measures of insulin to be injected are determined dependent on boundaries, for example, insulin-to-carb proportions and adjustment factors that should be aligned cautiously for every understanding. Incessant and cautious alignment of these boundaries is fundamental for keeping away from inconveniences like hypoglycaemia and hyperglycaemia. In this paper, we propose to incorporate ideal boundaries for supper bolus estimation beginning from models of the patient's insulin-glucose administrative framework and the implantation siphon. Different off-the-rack worldwide streamlining methods are utilized to look for boundary esteems that limit a punishment work characterized over the anticipated glucose sensor readings. The punishment work "rewards" glucose levels that exist in the recommended runs and "punishes" the event of hypoglycaemia.

III.EXISTING SYSTEM:

In existing framework every one of the sensors information will be put away send ship off the specialist utilizing Zigbee. A Wireless Sensor Network (WSN) for observing patient's physiological conditions constantly utilizing Zigbee. Here the physiological states of the patient's are checked by sensors and the result of these sensors is communicated through Zigbee[1] and the equivalent must be shipped off the distant remote screen for getting the noticed patient's physiological sign Infusion siphon is a clinical gadget. It is medical services offices utilized worldwide in emergency clinics, and at home. It can convey liquids both in prescriptions and supplements, for example, pain killers chemotherapy medications, chemicals or insulin, and anti-toxins into a patient's body in any sums. There are many kinds of siphons including insulin siphons, needle, huge volume, elastomeric, patient-controlled absense of pain (PCA), and enteral siphon. Enteral siphon is a siphon that is utilized to convey drugs and fluid supplements to a patient's intestinal system. Patient-controlled absense of pain (PCA) siphon is a siphon that is utilized to convey torment medicine. Insulin siphon is a siphon that is utilized to convey insulin to patients with diabetes which is regularly utilized in home. These gadgets are vital for attendants since they can show status of fluid that they provide for patients. Thus, the gadgets are extremely famous in emergency clinics for actually taking a look at status of medication.

IV.PROPOSED SYSTEM:

To propose a framework which predominantly comprises of a transmitter and a beneficiary segment. In the transmitter area (at the patient side), a four hub accelerometer will be put on the any mobile piece of the patient. This accelerometer is fit for estimating the static speed increase because of gravity and hence observing the place where the gadget is shifted as for the earth. At whatever point patient requirements any assistance he slants the accelerometer in various ways. This goes about as a contribution to the accelerometer while result of it is in volts that is associated with the regulator board which goes about as the handling unit. The result of the accelerometer relies upon the slant points and is perused by the regulator. The regulator maps the information voltages somewhere in the range of 0 and 5 volts into number qualities somewhere in the range of 0 and 1023 as simple information from the scope of 0-1023. This reach gives a great deal of affectability and a slight shift can prompt change in esteem. To diminish the intricacy and give a basic way to the patients, we decreased its affectability by planning it to 0-5 volts and afterward gave a reach to front, back, forward and in reverse. These bearings can be effortlessly perceived and utilized by any individual utilizing his/her thumb or any piece of the body fit for moving in these ways. A predefined message obliging the fundamental necessities of the patients and those needed for crisis will be put away in the reaches allot to a specific course as referenced over The accelerometer will be associated with every tolerant and every quiet will have a regulator board and transmitter for sending his messages. For distinguishing proof of various patients their name or number is shipped off the attendant. This multitude of transmitters can be associated halfway to one RF recipient which deals with a similar recurrence as the transmitter. Along these lines the proposed framework will give a numerous to one correspondence. At the recipient side, RF collector will get the message and send it to the regulator board on the beneficiary side which will then, at that point, show the message on the LCD.

BLOCK DIAGRAM

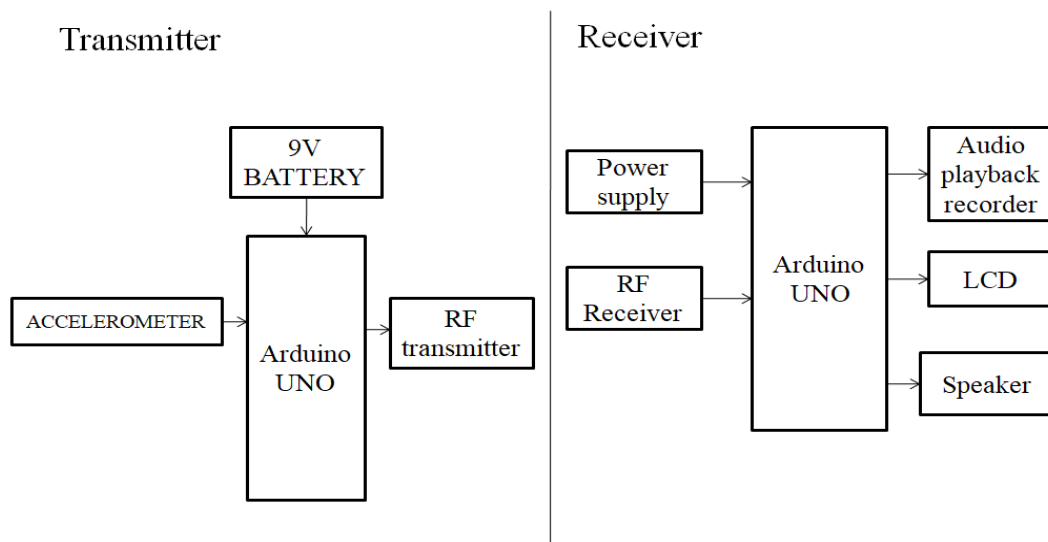


Figure 1:Block diagram

V. HARDWARE REQUIREMENTS:

5.1 Power Supply

The AC supply is applied to 12V advance down transformer. The transformer yield is the 12V AC which is corrected utilizing a diode connect. The yield of Diode Bridge of 12V DC is separated by capacitors.

5.2 LCD Display

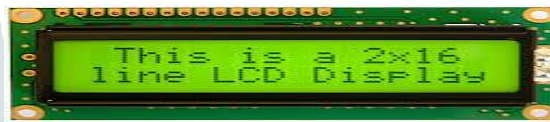


Figure 2:LCD display

LCD can show numbers, characters and designs. The showcase is interfaced to I/O port of microcontroller (P0.0-P0.7). The presentation is in multiplexed mode for example just each show stays on in turn. Inside 1/10th of a second the following showcase turns on. Right now here and there show will bring about constant showcase of tally because of industriousness of Vision.

5.3 ARDUINO UNO R3 MICROCONTROLLER

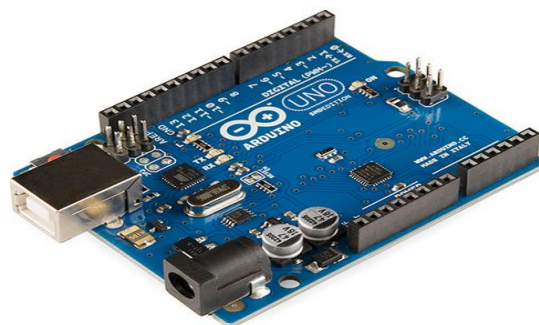


Figure 3: Arduino UNO Board

The Arduino Uno R3 is a microcontroller board based on the ATmega328. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started

5.4 ACCELEROMETER SENSOR

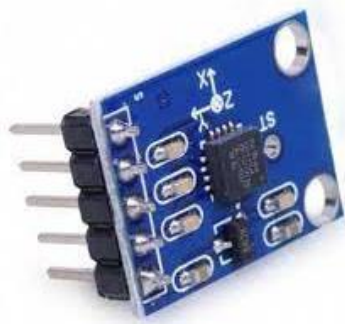


Figure 4: Accelerometer

An accelerometer is a tool that measures proper acceleration. Proper acceleration is the acceleration (the rate of change of velocity) of a body in its own instantaneous rest frame; this is different from coordinate acceleration, which is acceleration in a fixed coordinate system. For example, an accelerometer at rest on the surface of the Earth will measure an acceleration due to Earth's gravity, straight upwards (by definition) of $g \approx 9.81 \text{ m/s}^2$. By contrast, accelerometers in free fall (falling toward the centre of the Earth at a rate of about 9.81 m/s^2) will measure zero.

VI.RESULT:

The project shows the successful transmission of mainly four different messages. One of the most effective function of the system is that the message given by patient can also be heard through speaker. As well as the message is displayed on the LCD.

When the accelerometer is tilt to **left** side then message displayed is “**FOOD**”. When the accelerometer is tilt to **right** side then message displayed is “**WATER**”. When the accelerometer is tilt to **forward** side then message displayed is “**HELP**”. When the accelerometer is tilt is to **backward** side then message displayed is “**TABLET**”.

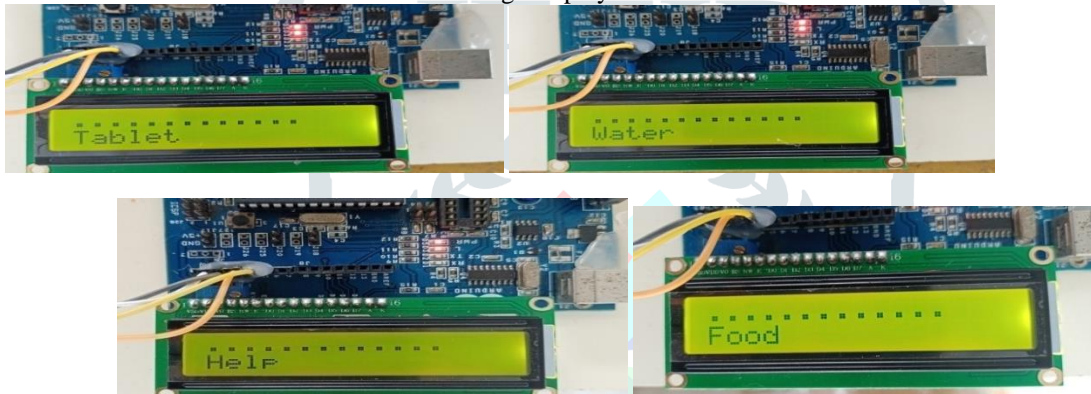


Figure 5: Output images

VII.CONCLUSION:

In this framework where we can convey the message given by patients remotely through the motion development by body parts to the medical caretaker, the data henceforth will be shown on the LCD show. Every tolerant will have such a gadget introduced close by his body and all such patients will be midway connected to the collector at the medical attendant side. This task will help individuals who can't do the full development of the body. This venture is intending to satisfy the correspondence hole between these individuals and the ordinary ones. The accelerometer we are utilizing is of 4 tomahawks, so it is extremely precise for tiny development moreover. Assuming that an individual with incapacity is eager, he will do some development with the body part containing accelerometer. Signal will become on and a message will be shown on the LCD. Alongside this a constant medication update and a crisis signal to improve on crafted by the attendant was carried out. Our framework gives a dependable, viable and basic yet significant answer for different issues looked by medical attendants in customarily speaking with crippled patients.

VII.REFERENCE:

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