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Chronic Obstruction Detection of kidney by using EEG sensor

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Abstract- **In these days, chronic diseases are the imperative reason for death in the world. Therefore, there is a noteworthy increment in consideration being paid to individual wellness as preventative methodology in healthcare. However, creating and building a prediction model for chronic diseases is an extraordinary change to healthcare technology on the premise of data-analysis and decision-making level. In this paper, effective mechanisms have been used for chronic disease prediction by mining the data containing historical health records. In this study, we also present comparative study of different classifiers to measure the performance based on accuracy rate.**

Keyword: chronic diseases, data analysis ,preventative methodology.

I. INTRODUCTION

Health insurance access, quality and affordability are issues all around the globe. There are settled in varieties in light of pay and geography, and the high costs of restorative administrations present moderateness challenges for countless people. Significant amounts of individuals don't get the quality care that they require. Convenient advancement offers ways to deal with help with these challenges. Through adaptable wellbeing applications, sensors, remedial gadgets, and remote patient checking things, there are boulevards through which human services conveyance can be moved forward. These developments can encouraging in order to cut down costs the transport of thought, and interfacing people to their human administration suppliers. Applications grant both patients and suppliers to have passage to reference materials, lab tests, and therapeutic records utilizing cell phones .

The objective of predictive analytics is to help organizations change information into significant bits of knowledge that can enhance business choices. Increased worldwide competition and the requirement for maintainable development are pushing increasingly organizations to adjust analytical methodologies for business insights. Healthcare associations like never before are being seen utilizing analytics to devour, distinguish and apply new insights from data. Innovative analytical strategies are being utilized to drive clinical and operational enhancements to meet business

A chronic condition is a human health condition or affliction that is continuing on or for the most part reliable in its things or an ailment that goes with time. While peril changes with age and sexual introduction, most of the typical chronic ailments in the US are brought on by dietary, lifestyle and metabolic danger calculates that are similarly charge of the resulting mortality. Nonattendance of access and defer in getting care result in all the more horrendous results for patients from minorities and underserved populations. Those obstructions to remedial thought confound patient monitoring and movement in treatment.

II. HARDWARE

Hardware system is constructed with power supply unit, Microcontroller –AT Mega 8A which is High Performance, Low Power AVR, Advanced RISC Architecture and High Endurance Non-volatile Memory segments.

EEG sensor

An electrophysiological monitoring method to record electrical activity of the brain. It is typically noninvasive, with the electrodes placed along the scalp, although invasive electrodes are sometimes used such as in electrocorticography. EEG measures voltage fluctuations resulting from ionic current within the neurons of the brain. In clinical contexts, EEG refers to the recording of the brain's spontaneous electrical activity over a period of time, as recorded from multiple electrodes placed on the scalp. Diagnostic applications generally focus either on event-related potentials or on the spectral content of EEG. The latter analyses the type of neural oscillations (popularly called "brain waves") that can be observed in EEG signals in the frequency domain.

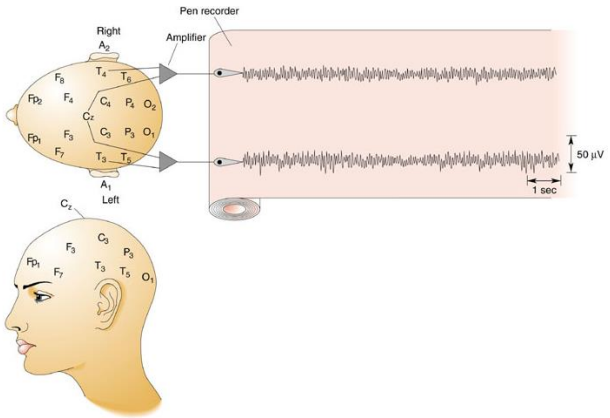

Fig 2.1: placement of electrode

we actually recording in the electroencephalogram (EEG). We are observing the "oscillating slow fields" of neurons in the upper layers of the cerebral cortex: specifically, the excitatory post-synaptic potentials.These post-synaptic potentials are the small changes in electrical potential caused

by neurotransmitter binding in the neuron's synapses. These changes in electrical potential lead a neuron to be more likely or less likely to fire action potentials, and are important in encoding information in the brain. If you would like to go down the rabbit hole, the core reference is the exquisite and challenging

Load sensor

A load sensor device that is used to convert force into a electrical signal. Hysteresis Effects reduced by material selection. Adhesive and geometry of gauge. Temperature Wheatstone bridge, additional temperature sensitive resistors in series with the bridge.

The LM35 thus has an advantage over linear temperature sensors calibrated in ° Kelvin, as the user is not required to subtract a large constant voltage from its output to obtain convenient Centigrade scaling. The LM35 does not require any external calibration or trimming to provide typical accuracies of ±¼°C at room temperature and ±¾°C over a full -55 to +150°C temperature range.

Liquid crystal display

Most common LCDs connected to the microcontrollers are 16x2 and 20x2 displays. This means 16 characters per line by 2 lines and 20 characters per line by 2 lines, respectively. The standard is referred to as HD44780U, which refers to the controller chip which receives data from an external source (and communicates directly with the LCD.

III. SOFTWARE

AT mega8

A low power of CMOS 8 bit microcontroller based on the AVR RISC architecture. By executing powerful instruction in a signal clock cycle. at the ATmega8 archieves throughputs approaching allowing the system .

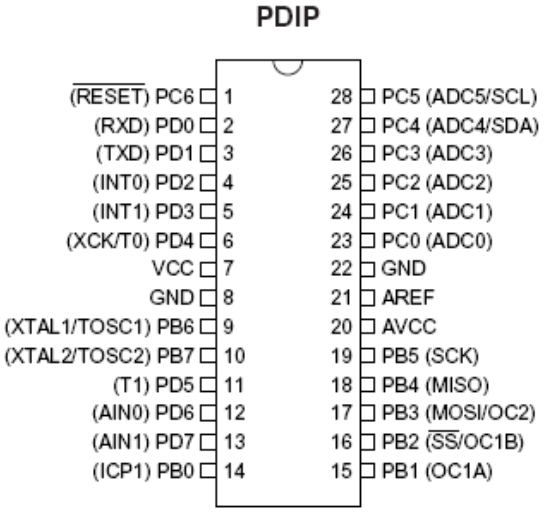

Fig 3.1 : AT mega8

Voltage regulators keep a constant dc output despite input voltage or load changes.The two basic categories of voltage regulators are linear and switching.The two types of linear voltage regulators are series and shunt.The three types of switching are step-up, step-down, and inverting.

The tiny AVR microcontroller is very smallin size and used in many applications.mega AVR microcontroller is very famous due to a large number of integrated components, good memory, and used in modern to multiple appliczations.

The Xmega AVR microcontroller is applied in difficult applications, which require high speed and huge program memory.

It is the one of the most powerful communications solutions. Microcontrollers supports both synchronous and asynchronous data transmission schemes. It has three pins allocated for that.

This module is incorporated to the integrated circuits that offers contrast facility.

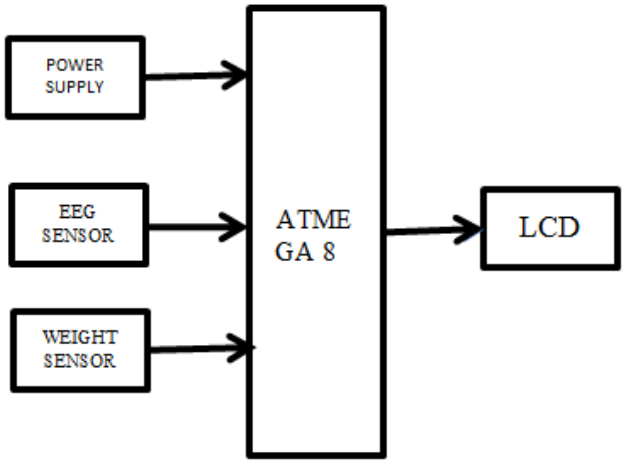

Fig 3.2: block diagram

IV. APPLICATION INSTRUCTION

Health monitoring applications of wearable systems most often employ multiple sensors that are typically integrated into a sensor network either limited to body-worn sensors or integrating body-worn sensors and ambient sensors. In the early days of body-worn sensor networks (often referred to as "body sensor networks"), the integration of wearable sensors was achieved by running "wires" in pockets created in garments for this purpose to connect body-worn sensors. An example of this technology is the MIThril system. Such systems by design were not suitable for long-term health monitoring. Recently developed wearable systems integrate individual sensors into the sensor network by relying on modern wireless communication technology. During the last decade, we have witnessed tremendous progress in this field and the development of numerous communication standards for low-power wireless communication. These standards have been developed keeping in mind three main requirements: 1) low cost, 2) small size of the transmitters and receivers, and 3) low power consumption. With the development Eeg sensor and Bluetooth, tethered systems have become obsolete. The recently developed IEEE 802.15.4a standard based on Ultra-

wide-band (UWB) impulse radio opens the door for low-power, low-cost but high data rate sensor network applications with the possibility of highly accurate location estimation.

Most monitoring applications require that data gathered using sensor networks be transmitted to a remote site such as a hospital server for clinical analysis. This can be achieved by transmitting data from the sensor network to an information gateway such as a mobile phone or personal computer. By now most developed countries have achieved almost universal broadband connectivity. For in-home monitoring, sensor data can be aggregated using a personal computer and transmitted to the remote site over the Internet. Also, the availability of mobile telecommunication standards such as 4 G means that pervasive continuous health monitoring is possible when the patient is outside the home environment.

Mobile phone technology has had a major impact on the development of remote monitoring systems based on wearable sensors. Monitoring applications relying on mobile phones such as the one shown in Figure are becoming commonplace. Smart phones are broadly available. The global smart phone market is growing at an annual rate of 35% with an estimated 220 million units shipped in 2010. Smart phones are preferable to traditional data loggers because they provide a virtually "ready to use" platform to log data as well as to transmit data to a remote site. Besides being used as information gateways, mobile devices can also function as information processing units. The availability of significant computing power in pocket-sized devices makes it possible to envision ubiquitous health monitoring and intervention applications.

V. ADVANTAGES

Simple and compact, Instantaneous results through an Liquid Crystal Display High level of accuracy Low maintenance phone. It can help you locate your phone when it is lost, or even connect to IoT enables devices in your home (such as switching on the lights or controlling the a/c temperature). The possibilities for increased convenience and connectivity with wearable's are endless. Wearables enable convenient tracking of your data, health, and exercise habits for your overall well-being. This is bound to result in a healthier you, but many health insurance companies are also starting to offer added benefits for those who wear fitness trackers and health monitors. Moreover, employees with higher-risk roles, such as firefighters, mining, oil & gas employees, and others are now able to wear devices that can detect oncoming dangers, such as heart attacks or falls, and immediately send this data to an outside manager or technical specialist for assistance. Wearable are set to make our lives safer and more efficient. For example – staff in packaging warehouses can now wear wearables that will assist in streamlining their packaging duties and tracking goods that are being transported, or wear GPS tags that can automatically tell them the most efficient route. Or, imagine that pacemakers, detectors, and other medical wearable devices can simply be connected through the internet to alter proper response teams when an accident or something dangerous has occurred.

VI. CONCLUSION

Thus we have made use of the latest technological advancement like arduino and sensors to take care of the victim. The required parameters are continuously monitored. This monitoring will help early prediction and curing.

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