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Implementation of Digital watches for healthcare monitoring through IoT

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ABSTRACT- Health is an important factor but no one is concentrating on their health. Most of us love to live the way we love but do not estimate the value of our lives. We eat more walk less and even don't have such potential to work for our calories. Every day is precious we have to spend it with more caution because we eat heavy foods. The day style and lifestyle is usually bit caution full as such people don't think is good enough. The food practice and lifestyle have been evolved like our technology evolution. Most of us are consuming the worst foods and don't lead a good lifestyle. We would need a health care system to initiate the good practice of life. The proposed model is defined to provide good health to the user. The Internet of things is used to control the data sets and provide the user a user-friendly vault and save the security balance of the data that are used for the manipulation of the system. The controller which is used in the proposed system helps to monitor the user's heart rate, blood pressure, sugar level, cholesterol. The controller is the potential application device used to maintain the proposed system in a balanced condition. The digital watches are a prototype model which is used to define the user. The user can define their life spans with these destined prototype models. The master class equipment used in the hospitals is costlier and needs more time. To record ourselves in a healthy way we need equipment that is user-friendly and don't need a high-cost perspective to hold all your diagnosis report. Thus we need our proposed system to hold up with all these devices. The cloud storage can be accessed by the user only. The user will be having the authentication login and password to reach out to their webpage to get a full diagnosis report. The diagnosed report will be sent to the concerned doctor or to watch out for an alarm if there is an emergency. The emergency report is sent to the doctor if there is any destined emergency. The Internet of things is mainly used to transfer data between the device and the cloud. The cloud is the main source of the platform to store, send and receive the data. The AWS cloud storage is used and it is a paid cloud system. It is the best cloud storage element and this is the best-secured cloud storage area.

Keywords: Health care systems, Internet of things, Digital alarms, controller, Aws clouds, Data encapsulation, Watches, sensors.

INTRODUCTION:

The Important part of life is health and as the old saying people say that is health is more important than wealth. Wealth is less important and everyone can acquire fame and wealth in all-cause of time and fair. But the health once is lost it cannot be acquired after. The people can think that they can acquire health with wealth. Wealth is important but health is so important other than anything. The important factor is to enchant the lives with the health mantra. The mantra is to stay healthy and be healthy with the proposed model. The healthy pace of life is running around the clock and it produces and proceeds with the pace of the journey. Health is one of the parts of life and one should make a note to produce good vibrancies among their environment to induce good health. The proposed system keeps you on a tiptoe to make the eternity to change the life span of the human. The environmental conditions, work balance, and many other factors change the lifestyle and span of the human being.Thus to change the life span and reduce the other diseases, we need to practice a good lifestyle and food styles also. People think that they live a good life but they don't. Thus we need a good embossing condition to help with their life expectancy. Most people think that they live a good and proper lifestyle but they don't. Their thoughts and their expectations about the environment and their life is covered lie. We have to understand that and live accordingly. In recent research, most people are dying because of their poor lifestyle and they need to change their lifestyle immediately. The recent research taken about human diseases and their life expectancy has been conducted in the recent era. The data's collected from the research revealed that the human race would live to a life expectancy of about 65 years or less. Most of the people will be having a sick lifestyle so that their lifestyle will be a mess and they have a life expectancy will be around 50s as shown in the figure1.

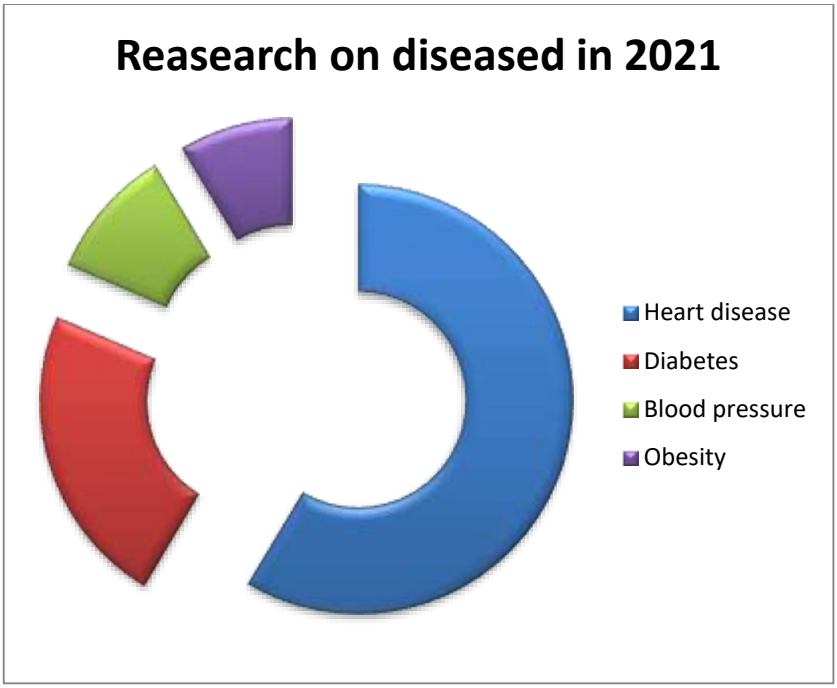

Figure: 1 Graphical representation of the diseased

Most death is caused due to poor food practice and a sedentary lifestyle. They are always due to heart diseases only. Most people die due to heart disease. It is unpredictable and the ages of the diseased cannot predict as such it comes upon due to the stress factor only. People of small ages are dying of heart disease and other chronic diseases of rare cases. The chronic diseases may be diabetes, blood pressure which also leads to a heart attack. Death is like a chariot that reminds you of birth. To retard this we need to live a good lifestyle. But nowadays people don't get a good and proper time to relieve themselves from the biggest work schedules. Thus the people work for their welfare to create wealth and other resources but they don't concentrate on the health problems they are engulfed in. Thus to predict their difficulties and then to guide them to lead a good lifestyle the proposed system model was devised. The proposed model was devised to monitor your heart rate, blood pressure, temperature, sugar level, calories, and how many calories you burnt throughout the day. All these data will be sent to the internet of cloud module and the cloud for storage. Thus the stored data will be viewed only by the user and his doctor. Thus we don't need to visit our doctor for sure to ensure our reports are correct and everything is going correct. Most of all will be devised and sent as a report to us through the cloud data and we can download our report to see if everything is proper. And the doctor will suggest to you the other medicines if needed in the report. This proposed system is a contactless mechanism that induces the people's health and produces the doctor's survival to the most. It overall helps all the people to change their lifestyle very easily and very well.

RELATED WORK:

The support vector machine is the basic methodology used in all forms of application even in health care sectors. Thus the usage of this methodology is to convey the proper classification in the devices and the classification leads to control the issues and the difficulties in the model. Thus in the existing system model, they detect multi-diversified medical conditions. But this method is a bit costlier and is afforded only in the medical centers and thus people with more underrated medical conditions and the persons with the clinical reviews are the expected persons who need these devices to enchant their bodies [1,2]. The Biomed instruments devices in the clinical need the Internet of things specification to allure people with best results and the people get their results instantly but most of the researches are taking in and around the Biomed instruments are as a prototype model which is not been invented and successfully concluded. So to reduce the cost and efficiency of the people we need an internet of things model to enhance the working and it should be cost-effective also. The mainframe devices used in clinical research are costly and they can diagnose the most serious diseases [3]. The internet of things is the most affordable and secured platform in all the norms which has been evolved to introduce the most efficient methods and the perceptions of how the machine could take. The most important thing is that the internet of the device changes the lifestyle of the user by its affordable cost and it is user friendly, so everyone with the least knowledge can easily access the system without any hesitation or any assistance [4-6].

The sensors play a major role in all these models. The sensors play a major role in the proposed model or even in the existing system as such the sensors used in the proposed model are used to incorporate the best working of the individual and induce a healthy lifestyle. But in most of the existing systems, they have less comfortable sensors and they will not produce high resolute results and the result prediction time will be more uncomfortable and they need a constant service routine to work back [7-10]

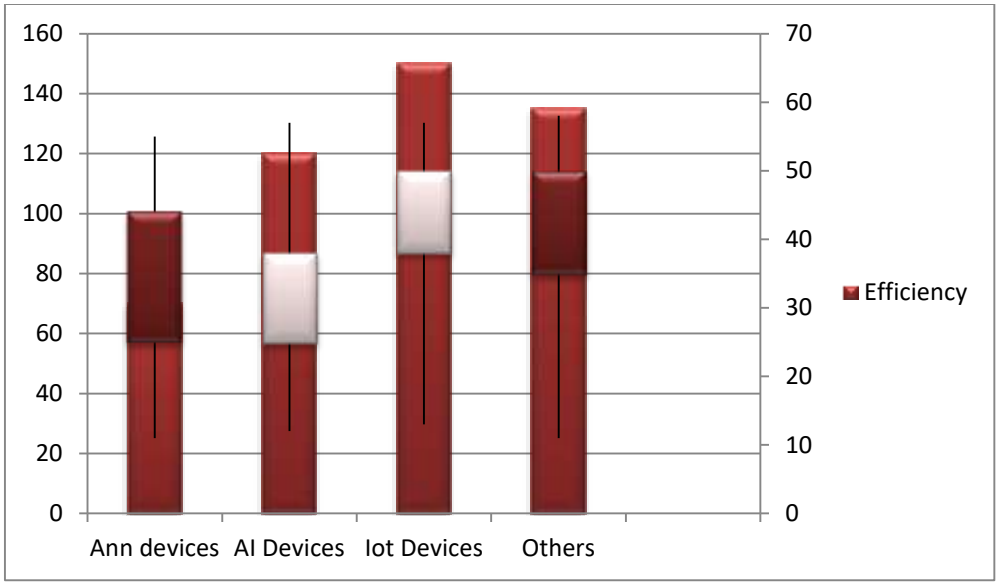

Figure: 2 Comparison chart for proposed to the existing model

Telemedicine is one of the former ways to treat people if they are contactable or not reachable at the moment. To that existing system, most of the telemedical assistants will be sitting frim in their positions to attest to the call of the people. This is also one of the costliest ways for people to afford it. The assistance has also been created to talk online, but they charge some costs for their assistance as shown in figure 2. The chatbot system was also introduced and for a single chat, we need to pay the amount to contact the doctor [11,12]. The fog computing system is also been devised to assess people's needs but they are also one of the costliest methods to implement. Fog computing is one of the parts of the Internet of computing model, as this system computes all the traffic into the desired server. The pull-up call gets filled and thus produces heavy traffic among people and cannot be easily routed to the user. So to reduce the traffic and the data security the proposed model is been deployed [13]. In most of the research, the internet of things compulsion was used in all forms of system, starting from the home, industries, automation to the health care systems. People believe that the internet of things made a great change over the years. Of course, these systems are used to create a good eco-friendly and data-friendly scientific appearance to induce the work done so fast in a fraction of time [14]. The artificial neural network model is also used to reduce the traffic but thus using an artificial neural network model in the system will reduce the efficiency in a quite bit lower range. Because they need good data sets for training and they need a pic bio model to depict their work. As such the device will be clumped and clogged full of data. To reduce the clogging the internet of the system alone is used in the proposed model. The data clogging will lead to devise inefficiency and model failure. So the proposed system is devised and programmed with the internet of things only [15].

The step count algorithms created for the Z1 Android Watch-Phone, including the wearable state detection, activity levels, and step count algorithms, have been tested in the lab for this device. When compared to the ground truth, only one participant was able to correctly identify a worn state when the results were analysed. The results were related to the self-reported levels of activity intensity given by the participants. The algorithm correctly detected normal and slow-paced walking in a group of 20 healthy persons, however it was useless when it came to detecting steps up or down the stairs [16]. It has been demonstrated that an accelerometer installed on the wrist can identify hand-to-mouth actions and that an accelerometer mounted on the head can detect chewing motions in a study published in the journal [17]. It is planned to employ a wearable device prototype [18] to remotely monitor the Covid-19 health symptoms of PIPs during the quarantine period throughout the quarantine period (possibly infected persons). The 3D prototype design integrates a wearable body sensor, a web API, and a mobile front-end layer to create an automated health care system that decreases stress while also serving as a channel of communication between medical authorities, doctors, and patients' families.

METHODOLOGY:

The digital watch is the device that tends to show the correct time and the day which is been on the go. Most of the digital watches are designed to show time and date and even somehow many steps we have completed and even some show the heartbeat sensed by our walking pattern. The same method we will be using the way for our digital and smartwatch. This watch shows the accurate results we needed for pulsating health. In some common watches, the data's like accessing the mobile phone when connected in the same wifi network and even the watches acts as a mirror work for the mobile phones we use. This happens when we are connected to the same network.Thus our proposed system works like the existing system but it does not mirror mobile phones nor connect to other devices. It connects only the cloud storage which enhances the system to work properly and makes them secure from hackers.

Once the device when connected to the other devices in the same network it is prone to other activities like hacking and placarding the data from the user. To prevent the data sets from ruining the system we need interference personnel to monitor the

data with an authentication ID. The system is devised with a controller to define the system working and that they control the device working console and makes the system work flawlessly and without any alarming situation. The controller is designed to control the data flow, and the pipelining method takes place within a few Nanoseconds to prevent data collision and data migration. If the data collide with each other without any interval of time the system gets frozen for seconds and gets inactivated. To prevent the data clogging the pipelining must be decoded into Nanoseconds to utilize the method to retreat breaking of the data codes.

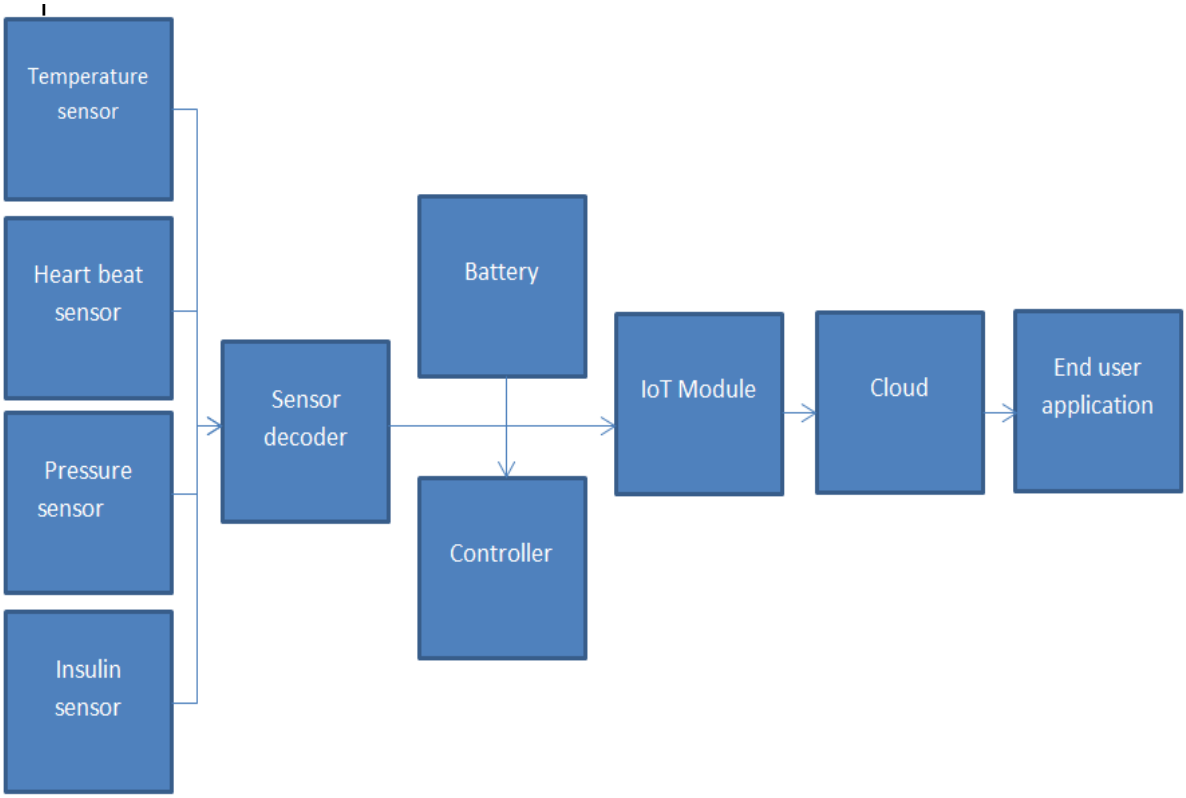

Figure: 3 Block diagram

The proposed system composes a temperature sensor, heartbeat measuring sensor, pressure sensor, insulin sensor and a calorie counter, a cholesterol controller. They are controlled by the sensor module to sense them and activate the prolonging nature of the user. They are controlled by the controller and can be defined for precisions. They are then transferred to the IoT module and to the cloud storage to levitate the interface. And all the data sets will pull over to the end-user by the application that has been defined to them. The end-user application is specifically designed for the user and the doctors who would like to interact about their clinical records and this will be contactless meetings. Most of the people get their online appointment and will wait for more time to complete their clinical trials. Thus this application will help save the time of the user. The user could claim an appointment online and can have a video conference clinical trials. The battery shelf life will be embossed to calculate the performance of the system. The temperature sensor is used here is used to control and monitor the temperature of the user. The temperature is sensed by the passive electrodes that have been embedded under the watch controller. Most of the sensors are titled down to get their work done and made to control the provoked control of the system. The temperature sensor once gets pulsated shows the temperature when needed to the user. If there are any symptoms of fever or other allergic reaction, the alarm fitted will buzz out to the user notifying that there is some external infection.

The heartbeat sensor is connected to the pedometer of the existing system. Thus once the pedometer detects the steps of the user, the heartbeat sensor detects the speed of the user and measures the user's heart ranges. It is one of the methods to calculate the heart rate of the user. Thus the system defines it by a simple calculation only. Not more than anything that can change the device occupancy. Thus everything in the sensors works like a calculation as shown in figure3.

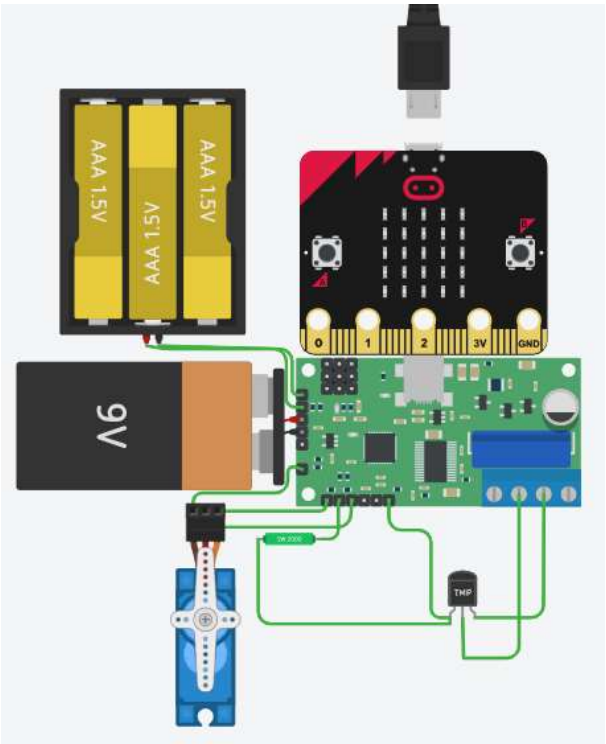

Figure: 4 Circuit diagram

The pressure sensor is used to check the blood pressure of the user. The blood pressure is not an accurate result. It depends on the person's active lifestyle and the person walking or running pattern. it shows how they are deprived by the pedometer. The pedometer here acts as a controller to check and produce a result about the user's activity. Physical activity will be conglomerated to check whether they have a healthy lifestyle. The insulin sensor is used to commemorate the insulin level in the blood, but it cannot be detected easily without the blood. So here comes the sweat insulin level, where the insulin level can be easily identified by the sweat droplets that the user shed on. The most important part of the proposed system is that the battery and the insulin sensor are placed face to face if when any droplet of sweat touches the battery then the battery will be diffused as shown in figure 4. The form factor of the watch looks similar to the other watches and can proceed to control the shape within 38 millimeters and the thickness of the dial will be less than 12 millimeters and the facial imprints can be able to able to be detected through the system. The system is defined by anodized metals like zinc, aluminum, and others. On the left side, we have a knob to thrift the system data and may be able to control an outbreak of the device portfolio.The watch is composed of metal and the badges are constructed with high-quality leather. The left knob issued to control the system to return the system to come back to the home page. Then it is also used to control the systems outpace by zooming in and out. The Proposed model showcases the clear definition like an analogy watch. The system will automatically close if there is no activity on the screen to save the power. It wakes up when we touch the display or move the knob.The watch is having a touch screen module with a flexible pupil motion. They are fragile and come with a host protective shield to prevent them from breaking when dropped from the heavy place. The small electrodes are defined to control the movement within the display. The display is covered with microtubules of electrodes that are charged particles to produce a crystal clear vision to the user when there is dim light. There is a dark mode and a bright mode which is been designed to produce a user-friendly accent to the user by changing the mode for their convenience. The watch is set to reading mode also if they need to read the data that is been displaying properly. It is mainly used to control all the pace of work to be contributed to all the pages that use it.

The watch is also fitted with the gyroscope and accelerometer to detect the movement produced by the user, like if they are walking or running or still sitting in a sedentary place. The electrodes present in the back of the watch are covered with properly casted metals to prevent them from rusting through the sweat or the frequent usage of the watch. The watch is made of waterproof metals to control the best period to compose their discrepancies.The device is equipped with aWi-Fi module for near-field communication devices. The internet of things is used to define the system's interface and acts as a communication device from the user to the application. The internet of things is mainly used to transfer data to pre-defined systems. Most of the redundant devices will be able to communicate to the applications as shown in figure5.

Figure: 5 proposed model

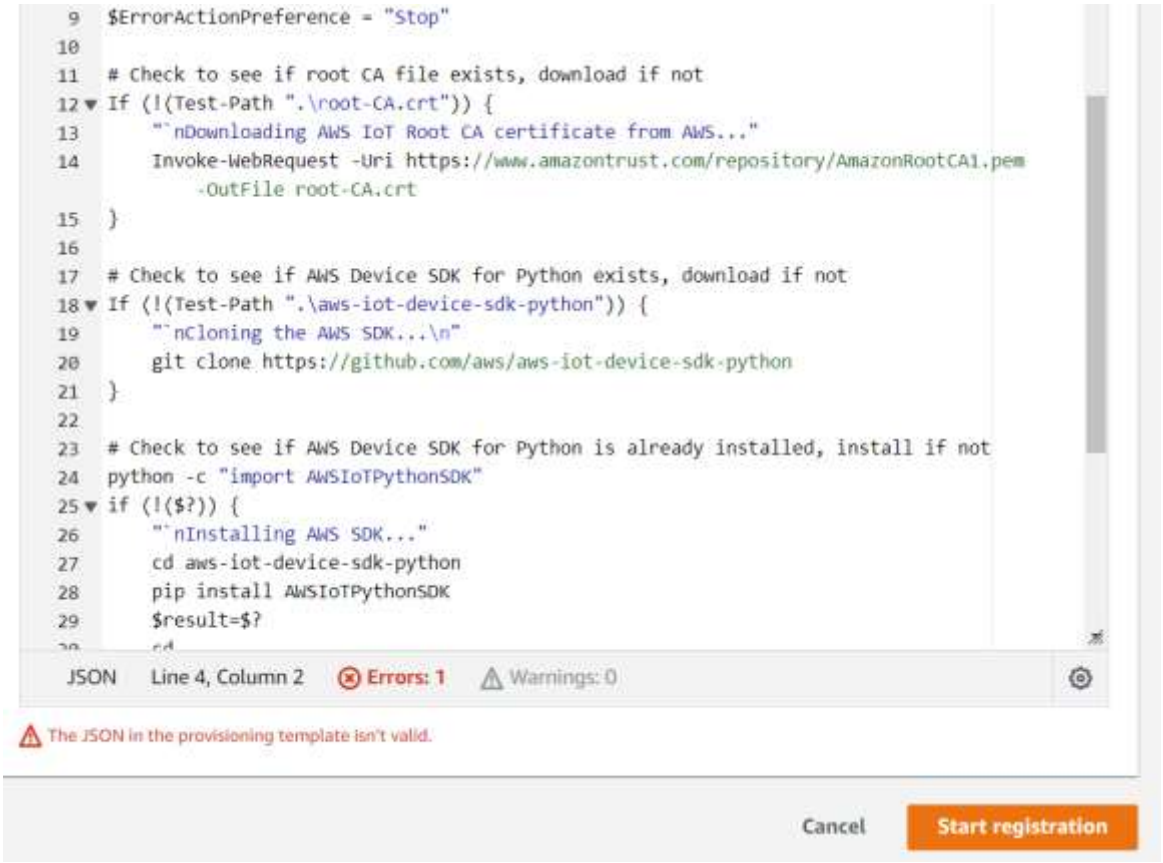

Figure: 6 Registration panel

Once the registration is completed we can access the application that is used for the end-user. The end-user should register themselves to the website to get their data uploaded and they will get an authentication ID and a password to login when they need. The console is the registration console as shown in figure6

Figure: 7 Input consoles

The input and the output console are used to feed the data into the web browser and construct the data set for interpretation and construction of the desired path metric to elucidate the output for efficacy as shown in figure7.

RESULTS AND DISCUSSION:

The health care monitoring system is thus defined and it produces an extraordinary result for the user and provides a user-friendly movement to conclude the proof of the working prototype. The binary data sets are used to elucidate the constructive nature of the prototype. Thus this model provides a wake-up call within 0.12ns and the response time is about 2.34us and which is much higher than the existing systems. The proposed model produces perfect isolation for every window console. The consoles are protected with a firewall to provide the user with the bestsecured platform. The output window is shown in the figure8 which enables the promotion of data sets to the external modules.

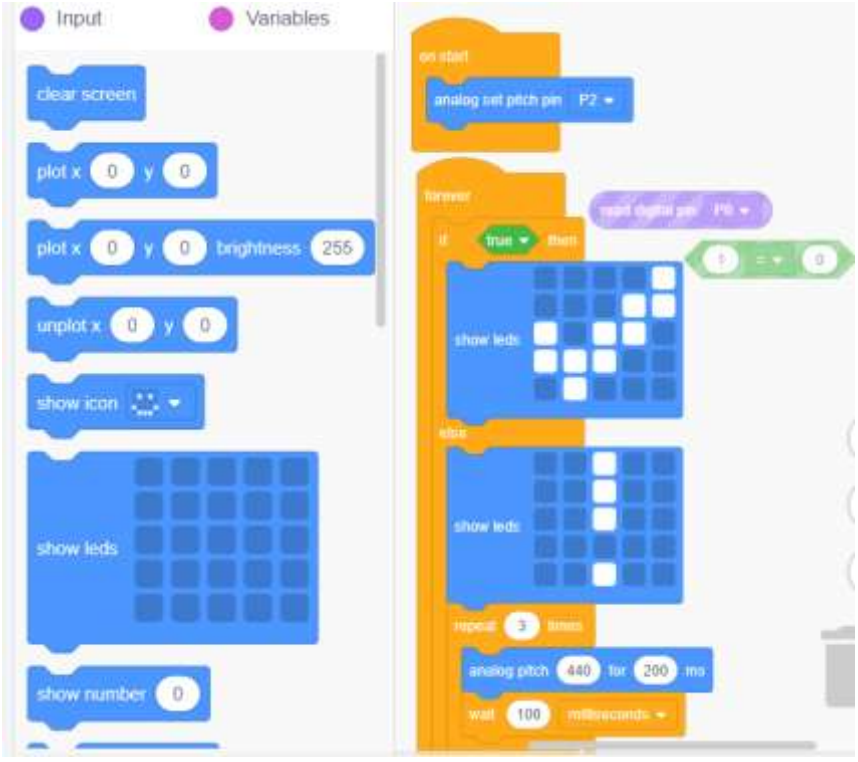

Figure: 8The output window

CONCLUSION:

In the current scenario we had worked with most of the technical findings and we even design more for the welfare of society. Thus this proposed system is also one such model which was designed based on the existing systems and it has been polished itself by providing a great break from the old technology. It creates a new scenario to emboss the technology and the other featured devices. Thus this proposed prototype model produces a high-class efficiency of about 83.45% from the existing system. The excavations taken back by this system prove it has worked to produce high vein security to the data of the people. On the other hand, the proposed model is concentrated on the wellness and the security of the information of the user. Thus the surveillance system and the defense protection is been updated. The proposed system is provided with an operating system that automatically updated the surveillance when needed when connected to the other unauthorized network.

ACKNOWLEDGMENT:

This proposed model is designed and tested on some of the users of our site and we got glad results from our proposed prototype model. And we are immensely very happy to say thanks to our volunteers and to the faculty members who constantly supported our proposed system from the far beginning. It took a whole year to conclude the results and we thank our institution for the constant support and the funds they lend me took to this level of results. Thus we have hearty thanks to all the ones who helped in this work.

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