SMART PRENATAL HEALTH CARE MONITORING SYSTEM FOR PREGNANCY WOMEN IN RURAL AREAS USING IOT

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Abstract - *In the developing countries most of the peoples are lived in the rural areas and medical systems are not available for sharing information. and now a-days, Corona virus is a most dangerous virus in the World. We followed Covid-19 Protocol's, but the cases are Going to High Many death Case's we seeing. In this Pandemic Situation the Pregnancy Women are lived In rural areas theybcan't go to city and take the treatment, The pregnant women are unable to do their normal checkups at the starting time of pregnancy time and this cause higher death count in case of newborn and parental in the rural areas as well as in urban also. Due to this situation, the women are facing an immense medical issue. Accelerometer sensor is designed to measure the count of kicks by unborn child and it is transfer into the ARDUINO UNO controller. Motion of the foetal and some important parameters such as Blood pressure, Heartbeat rate, count of unborn child's kicks and temperature for the women are measured using various types of sensors. The measured parameters are transmitted by way of IOT and it is displayed in the mobile phone. This system is highly sensitive and light weight even for small motion, so it is preferred as a home monitoring device.*

Key Words: *Parental, ARDUINO UNO, Accelerometer, Foetal.*

1. INTRODUCTION

Due to unavailability of hospitals in rural areas and longer distance required to travel from rural areas to cities, Rural areas people are not really conscious about their health, for small injuries and routine check-ups. Due to this pregnant lady from rural areas avoids their regular check-ups at the initial stage of pregnancy and also for regular check-ups for the pregnancy women regular check-ups will help to reduce abnormal children birth and fetal mortality rate. During Pregnancy, every trimester will be considered of 14 weeks and overall pregnancy length will be of 42 weeks. During this period, there is possibility of various complication due to maternal sepsis, bleeding and variation in blood pressure which may results in gestational diabetes and weight gain during pregnancy. During pregnancy few women may face the problems of high blood pressure which is called as gestational hypertension which can impact on the mother's kidneys and other organs. Every day, pregnancy women will die from preventable causes related to pregnancy and childbirth. 99% of all maternal deaths occur in the developing countries. Maternal mortality is higher in women living in the rural areas and among poor communities. Most of the birth in rural areas occur at home. Women in the rural areas lack of knowledge about importance of proper medication. Though India has made an appreciable progress in improving the overall health status of it. We are using latest sensors for measuring parameters which will not harm both the fetal and maternal.

2. LITERATURE SURVEY SUMMARY

It is the comparison of various authors who worked on the IOT and also have tried various checkups on pregnancy women using IOT systems.

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3.EXISTING SYSTEM

In the existing method ultrasound scan of the pregnant women is performed and along with that some vital signs ismeasured. The main drawback of the existing system is that the ultrasound scanning is expensive. In order to overcome this an accelerometer sensor is used to measure the kick count of the fetus and the vital parameters suchas temperature and heart beat is measured and the aim is to develop a compact assist device for rural pregnant women in order to access the vital signs of maternal and fetus with low cost using recent sensors and internet of things for personalized care.

4.PRAPOSED SOLUTION

In this system the Arduino is used to attach with three sensors namely memes sensor and heart beat sensor. Thisacts akin to a microcontroller which collects and reads values from the sensor through the physical connection ofinput and output pins of the board. WiFi module are attached in this system thus it helps to take reading and display on your mobile.

5.OBJECTIVES

1.To Construct the hardware model for measuring various health problems in pregnancy women and the fetus. 2.To deploy the various parameters to the cloud.

3.To develop the android-based UI for interaction with cloud.
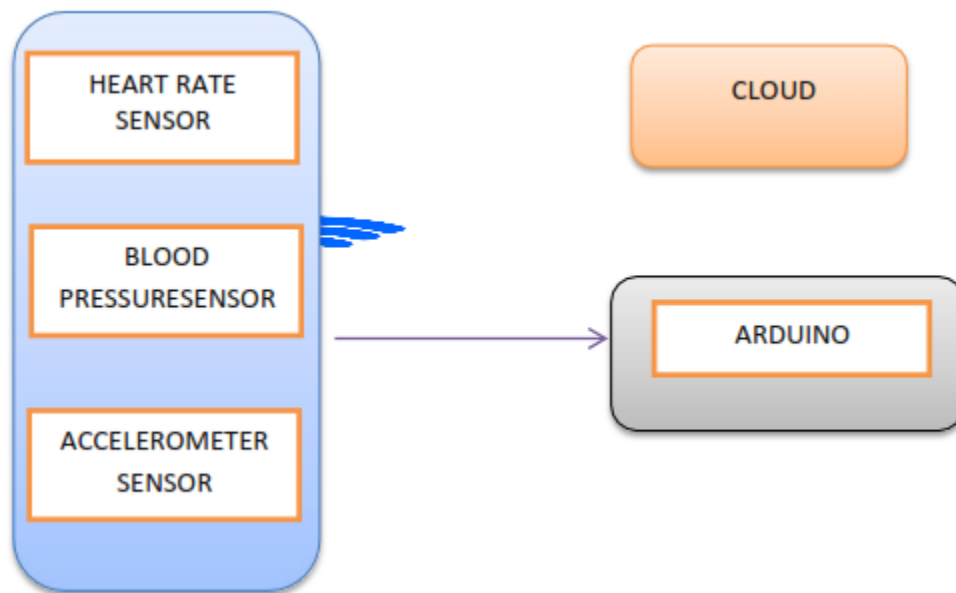
6.METHODOLOGY DIAGRAM

Fig-1: Methodology diagram

In this system the Arduino is used to attach with three sensors namely memes sensor and heart beat sensor, Bloodpressure sensor. This acts akin to a microcontroller which collects and reads values from the sensor through the physical connection of input and output pins of the board. WiFi module (ESP8266-12E) are attached in this systemthus it helps to take reading and display on your mobile. The Internet of things progressively allow to incorporate device capable of connecting to the internet and endow with information on the condition of health of pregnant women and provide information in real time to doctors

who assist it. This data can be retrieved or viewed in the form a mobile at the instant of time with secured authentication. This data will be kept and stored as a backup for any kind of future reference. The main source of pregnant women health care system at present stage is that when pregnant women is at the rest position.

7.RESULTS

Fig-2: Prototype model containing sensors

The above developed prototype model is going to detect the fetus moments and kicks With the help of accelerometer sensor and gyroscopic, and also detect the heart beat and temperature of the mother using heart beat sensor and temperature sensor. The results from the above sensors are transferred to the cloud, through these readings we can obtain the number of fetal kicks and it's graph, also the temperature of the mother along with the heart beat. From these results we can avoid the fetal and mother death's in rural areas and improve thehealth monitoring system in the rural areas.

Fig-3: Tested Result

Fig-4: Pregnant women wearing the belt containing sensors

8.CONCLUSION

In this project, the results obtained from the different sensors devices will be compared and analysed in detail the values are recorded using the sensors and processed using the microcontroller for emergency send the message to the doctor. The system is low cost ,self- monitoring device and used in remote areas efficiently. A new architecture of IOT health monitoring which provides security at the communication link as well as by providing user authentication.

9.REFERANCE

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