Introduction:

The current high cost of healthcare and the trends of increasing costs due to the ageing society are important issues in the world. Thus the implementation of measures for cost reduction is one of the most significant current trends in healthcare. One way by means of which the cost reduction can be achieved by increasing the efficiency within healthcare organizations, for e.g., by reducing the number of “days of stay in a hospital”, reduction of costly treatment programmes, and the number of face-to-face consultations. Another way is prevention by detecting people at risk in an early stage and providing guidance to prevent costly hospitalization. It is also important to motivate people to maintain a healthy lifestyle. In the modern world, people are feeling increasingly responsible for their health and many people, in particular when young; wish to be involved in the decision making associated with their health or disease.

This project proposes a medical embedded device for individualised care allowing adaptive sensor management and autonomous diagnostic inference. An intelligent personal monitor is proposed where a committee of artificial neural networks is used to raise alarm for unwanted cardiac events.
**Objectives:**

This project proposed to construct a health monitoring system that would allow a pregnant woman in the rural areas to interact with a Doctor/Physician with almost full functional capability. Illiteracy in women and lack of access to health facilities in many rural areas increases the risk of death for child-bearing women. Preventive measures by constant health monitoring of patient at early stages and guidance to prevent costly hospitalization to avoid such risks is the main objective of the project. The health monitoring device suggested in this project constantly measures the Temperature and Heart Beat of a pregnant Lady and whenever there are fluctuations from the normal value GSM sends the information to gynaecologist at remote place through her mobile. Also, this device allows the user to hear the advices and diet prescriptions as advised by the doctor.

This system operates as a health monitoring unit, but the user has the access to hear the advices and diet prescriptions as advised by the doctor. This is achieved by using an Audio recording & play back chip.

**Methodology:**

![Diagram](image)

Figure.1: On Patients Body
This project uses AT89C51 MCU as its controller. By reading temperature and Heartbeat values continuously from pulse count sensor these values are recorded and sent to the base station using zigbee technology as shown in Fig., 1. The controller at the base station accepts the data via zigbee and send it to the Doctor or Physician wirelessly using GSM modem, where in during the pregnancy period the physiological activities of a pregnant lady will be changing continuously so in order to monitor the changes in the pulses and temperature of an pregnant lady in an rural areas this system is proposed and will be incorporated, here when the heart rate shoots up then the normal level or beyond the thresh hold level the measured values are sent to the doctor through GSM modem via an SMS so that the Physician who is attending that patient can respond quickly and an medical emergency can be provide timely.

This health monitoring system also has an audio playback and recording chip which plays automatically providing nutrition and other given command information required by the patient.

**Results and conclusions:**

Rural pregnant ladies will get right nutritional diet guidance as well as constant health monitoring to take preventive measures at the earlier stages to avoid complications during pregnancy. The proposed project has presented a networked multi-agent architecture for monitoring of human health conditions based on emerging wireless mobile technologies. The application of this framework can be applied to many e-health service scenarios. This can range from doctor to patient monitoring from a remote location.
Scope for future work:

The following modification can be done which leads to still smarter project. The present project monitors the heart beat and temperature of mother but not the foetus. So the upcoming projects can take a look at measuring heart beat and temperature of both mother and foetus. Hence both can step out of danger if there is any problem during pregnancy.

We used zigbee in this project the future projects can use the higher version of connectivity. This project is open for developments from all sides. It is user’s imagination which limits the working of this project. One can go on adding the extra, rich features to this project.