

**Mobile system for monitoring vital signs**

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**GRP project proposal**

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1. **Introduction and Literature review**

Vital signs can indicate the health state of human body. Vital signs that evaluate health state include heart rate, brain wave, weight and the quality of blood. An abnormal data is one of the symptoms of a disease. To curb the growing incidence of diseases, technology to monitor vital signs is becoming increasingly significant. Monitoring body signals is becoming more and more significant. According to the statistics from WTO, cardiovascular disease (CVDs) is the most fatal of death worldwide, the rate of death is always at the top among all disease. [1]. Diabetes mellitus (DM) is considered as a global epidemic, which makes a great influence on global population. Due to an approximately estimation, 6%-8% of world’s population is suffer from DM. Compared to the number of 336 million affected people in 2011, it predicts that in 2030, the increase will be 50.8% and nearly 552 million people will involve in DM [2]. Moreover, for certain groups of people, situation is even worse. For the pregnancy, mood symptoms are especially important. Prenatal depression is common in pregnancy, however, only 18% of women are willing to seeking treatment.[3]

* 1. **Background**

The pregnancy-related complications can be fatal to both the mother and fetus throughout the pregnancy. One of the most dangerous complication is Hypertensive disorders (HD). According to the investigation from 38 hospitals in China, it is estimated that nearly 5.2% of all pregnancies were involved in this disease.[4] Another risk disease is Gestational diabetes mellitus(GDM), statistics from WTO shows that the prevalence of GDM continuously increases rapidly since 1999(9.3% in 1999).[5] Therefore, it is vital significant for pregnancies to have a system to record body signs.

The main goal of the project is to build up a system that can receive the pregnant women’s data from the device and generate a report for users. The report includes: Graphs illustrate users’ body data and report explains the health state of user.

* 1. **Motivation**

There are already many different detection systems on the market, such as Apple, Xiaomi, and Huawei. In general, these systems all have basic functions such as measuring heart rate or temperature. However, there is no powerful system designed for the pregnancy women. For example, the Xiaomi system is inadequate in monitoring heart rate, users cannot view tracks by period. For Huawei system, its data reception is unstable which may lead to the imprecision of receiving data. But the pregnancy women should be able to check their heart rate timely and precisely. In our system, it not only has the basic functions, but also has extra functions designed for the pregnancy. The system could compare the user’s data with the average data, producing line charts for user to check. Moreover, the system could integrate all the statistics received from the devices and output a report with some suggestions for user.