



## INTRODUCTION AND MOTIVATION

Miscarriage, medically known as spontaneous abortion, refers to the natural loss of a pregnancy before the 20th week of gestation, leveraging big data analytics and IoT can contribute to early detection and intervention, potentially improving outcomes for pregnant women.

**MOTIVATION:** By harnessing vast datasets and monitoring through IoT devices, the system aims to proactively identify potential risk factors, enabling timely interventions and personalized care to mitigate the devastating impact of miscarriages.

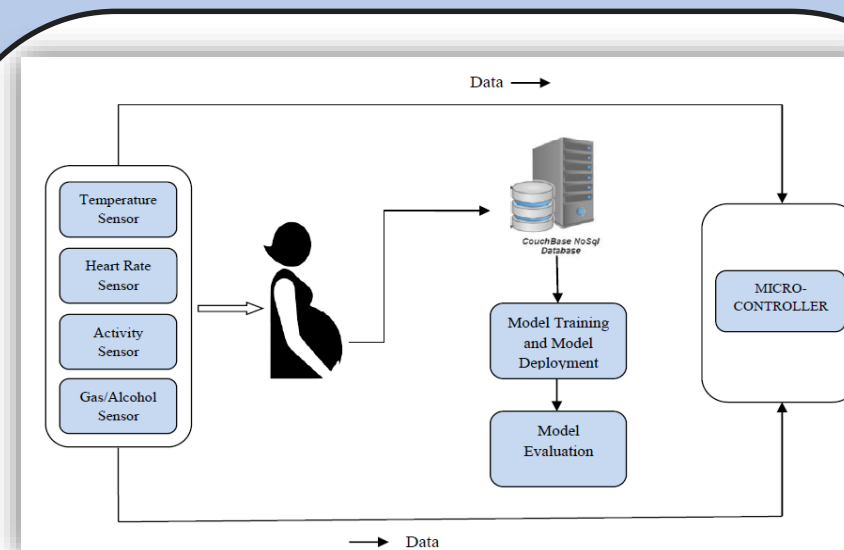


**Figure 1:** Different types of pregnancy complications

## OBJECTIVES

- Prediction of miscarriages, using personal data.
- Use of data: receive information about location, activity and BMI.
- To analyze extensive pregnancy-related data, including maternal health and various risk factors associated with miscarriage.
- To improve overall maternal well-being, thereby reducing the risk of miscarriage and providing timely support and guidance to expectant mothers.

## METHODOLOGY



**Figure 2:** Block Diagram of Miscarriage Prediction

Sensor-Based Health Monitoring	Various sensors are deployed on pregnant women and Arduino microcontroller manages data collection.
Data Management and Analysis	Data is integrated into a Big Data Platform, processed, and used in a predictive model for miscarriage likelihood.
Result Dissemination, Continuous Improvement	Predictions are sent to healthcare professionals, facilitating timely intervention in potential miscarriage cases.

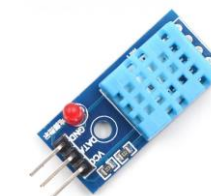
## EXPECTED RESULTS

- By the risk factors gathered from sensors, reaction is taken in advance and diseases are tracked.
- Miscarriage prediction to save baby's lives and help pregnant women.
- To gather extensive pregnancy-related data, including maternal health and various risk factors associated with miscarriage.

## SOFTWARE/HARDWARE COMPONENTS



**Figure 3:** Arduino



**Figure 4:** Temperature Sensor



**Figure 5:** Activity Sensor



**Figure 7:** Gas/Alcohol Sensor



**Figure 6:** Heart Rate Sensor

## REFERENCES

1. "Towards a smart health: big data analytics and IoT for real-time miscarriage prediction", by H. Asri and Z. Jarir.
2. "Big data analytics in healthcare: case study - miscarriage prediction", by Asri H, Mousannif H, Moatassime H A and et.al.
3. "Comprehensive miscarriage dataset for an early miscarriage prediction", by Hiba Asri, Hajar Mousannif, Hassan.
4. "A risk-prediction nomogram for patients with second-trimester threatened miscarriage associated with adverse outcomes", Al Moatassime.