Project Design Phase-I
Proposed Solution

Date	17 November 2023
Team ID	SI-GuidedProject-610171-1701658790
Project Name	FetalAI: Using Machine Learning to predict and monitor Fetal Health
Maximum Marks	2 Marks

Proposed Solution Template:
Project team shall fill the following information in proposed solution template.

S. No.	Parameters	Description
1.	Problem Statement (Problem to be solved)	High maternal and child mortality rates persist globally, especially in low-resource areas. Existing fetal health monitoring methods lack the precision needed to identify risks early, hindering timely interventions. There's a pressing need for an innovative solution that combines cost-effective tools like Cardiotocograms (CTGs) with advanced machine learning to enhance fetal health classification, particularly in resource-constrained healthcare settings.
2.	Idea / Solution description	The proposed solution is a Fetal Health Classification project that utilizes Cardiotocograms (CTGs), which are simple and cost-accessible tools to assess fetal health. These CTGs work by sending ultrasound pulses and reading their response, providing information on fetal heart rate (FHR), fetal movements, uterine contractions, and more. The project involves the implementation of machine learning and artificial intelligence algorithms to classify fetal health based on various parameters, such as heart rate and movement. The goal is to support healthcare providers in making informed decisions regarding pregnancy management and ensuring the well-being of both the mother and the unborn baby.
3.	Novelty / Uniqueness	The novelty of this solution lies in the

		integration of CTGs with advanced machine learning and artificial intelligence algorithms for fetal health classification. While CTGs are already established tools for fetal monitoring, the addition of AI brings a new dimension to the accuracy and efficiency of classifying fetal health. The use of AI algorithms allows for real-time analysis and interpretation of complex physiological data, providing healthcare providers with valuable insights into the health status of the fetus.
4.	Social Impact / Customer Satisfaction	**Social Impact:** ● Promoting Informed Decision-Making: The solution empowers expectant parents with accurate and up-to-date information, enabling them to make informed decisions about their pregnancy and childbirth. ● Reducing Infant Mortality: Access to information about fetal health helps identify and treat potential health issues early, contributing to a reduction in infant mortality rates. ● Improving Prenatal Care: Knowledge about fetal health allows for the creation of tailored prenatal care plans, leading to better outcomes for both the mother and the child. **Customer Satisfaction:** Expectant parents are likely to experience higher satisfaction due to: ● Early Detection: The solution enables early detection of potential health issues, providing a sense of security and allowing proactive measures. ● Personalized Care: Tailored prenatal care plans based on the health status of the fetus contribute to a more personalized and satisfactory healthcare experience.
5.	Business Model (Revenue Model)	● Service Fees: Healthcare providers can charge service fees for offering fetal health testing and monitoring services to expectant parents.

		• Additional Tests and Procedures: If a health issue is detected, additional tests, procedures, and treatments may be required, generating additional revenue. • Subscription Models: Implementing subscription models for continuous monitoring and updates during the pregnancy period. • Collaborations and Partnerships: Partnering with pharmaceutical companies or research institutions for data sharing and collaborative research efforts, creating potential revenue streams.
6.	Scalability of the Solution	• Technology-Based Scaling: AI and machine learning algorithms allow for efficient processing of large datasets, facilitating scalability as the number of users increases. • Global Applicability: Fetal health is a universal concern, and the solution can be implemented globally, addressing the Sustainable Development Goals set by the United Nations. • Adaptability: The solution can adapt to different healthcare settings, from well-established facilities to those in low-resource settings, aligning with the goal of reducing maternal and child mortality worldwide.