

FUSION OF WEARABLE ULTRASOUND AND AI FOR DYNAMIC MATERNAL-FETAL HEALTH PREDICTION MODELS



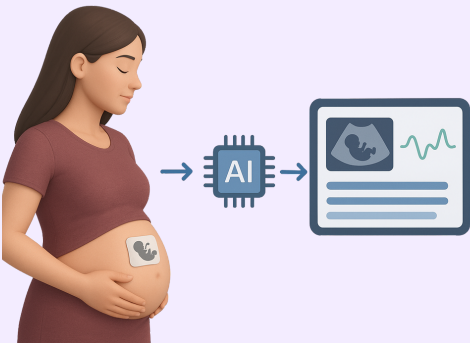
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1 | THE PROBLEM

Traditional ultrasound gives episodic insight — single timepoint scans.
Maternal-fetal health evolves dynamically. Risk factors like preeclampsia or fetal distress often manifest between check-ups.

2 | THE FUSION CONCEPT

We integrate wearable ultrasound with adaptive AI models to continuously track maternal and fetal well-being.
The system learns individual baselines and predicts deviations before symptoms appear.



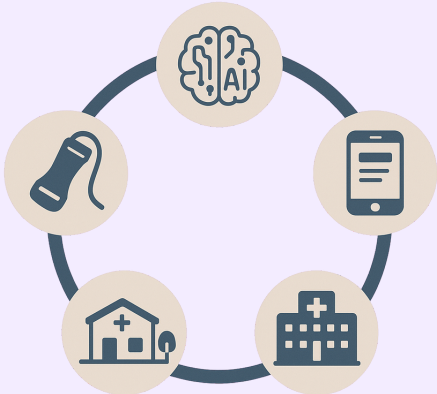
3 | DYNAMIC AI-DRIVEN MONITORING FRAMEWORK

- Inputs:
- Continuous ultrasound data (fetal HR, placental flow, motion)
- Wearable sensors (temperature, position, pressure)
- AI Fusion Core:
- CNN-LSTM / Transformer model
- Personalized baseline adaptation
- Reinforcement learning for continuous optimization
- Outputs:
- Risk predictions
- Clinician dashboard
- Mobile patient feedback

5 | TOWARDS SMARTER, SAFER PREGNANCIES

- Enables early detection and prevention of complications
- Empowers clinicians with actionable insight
- Expands access in low-resource or remote environments

Quote:
“AI doesn’t replace the sonographer/Radiologist — it enhances their intuition



4 | WHY IT’S DIFFERENT



We need continuous, intelligent monitoring

- ✓ Continuous, wearable ultrasound
- ✓ AI predictive modeling of maternal-fetal physiology
- ✓ Reinforcement learning adaptation
- ✓ Explainable AI outputs
- ✓ Designed for low-resource deployment

Dynamic Maternal-Fetal Health Prediction via Wearable Ultrasound and AI

