**Abdominal Deflection Driven Fetal Monitoring Belt**

This research focuses on the development of a compliant belt with an integrated highly flexible self-sensing nano-composite strain gauge. It is designed for tracking the deformation of a mother’s abdomen due to labor contractions and other possible deformations during pregnancy. Real-time data on the circumference of the abdomen can be relayed to a computer or smart phone making is easy to track the progress of uterine activity during labor. While this research is primarily concerned with the fetal monitoring belt, other aspects of recording human biometric activity are possible by utilizing the same high deflection strain gauge technology used in this application.

Testing has been done to determine the general capabilities of the monitoring belt. Typical deflection of the abdomen is within the sensing bandwidth of the belt and noise produced from limited movements will not hinder the performance of the monitor in most situations. Further human testing is needed to verify the concept and compare it’s effectiveness to other fetal monitoring devices.