Smart Textiles Integration for Monitoring Real-time Air Pollution

Authors : Akshay Dirisala

Abstract : Humans had developed a highly organized and efficient civilization to live in by improving the basic needs of humans like housing, transportation, and utilities. These developments have made a huge impact on major environmental factors. Air pollution is one prominent environmental factor that needs to be addressed to maintain a sustainable and healthier lifestyle. Textiles have always been at the forefront of helping humans shield from environmental conditions. With the growth in the field of electronic textiles, we now have the capability of monitoring the atmosphere in real time to understand and analyze the environment that a particular person is mostly spending their time at. Integrating textiles with the particulate matter sensors that measure air quality and pollutants that have a direct impact on human health will help to understand what type of air we are breathing. This research idea aims to develop a textile product and a process of collecting the pollutants through particulate matter sensors, which are equipped inside a smart textile product and store the data to develop a machine learning model to analyze the health conditions of the person wearing the garment and periodically notifying them not only will help to be cautious of airborne diseases but will help to regulate the diseases and could also help to take care of skin conditions.