

ABSTRACT

This Project introduces a novel approach to weight determination and management, focusing on spinal health and convenience. The proposed system integrates IoT technology into a universal backpack design to provide real-time weight monitoring and analysis. By leveraging embedded sensors and connectivity, users can accurately assess the load on their spine and adjust as needed to prevent strain and injury. The system employs a user-friendly interface, accessible via a mobile application, allowing for personalized weight thresholds and notifications. Through a combination of bio-mechanical analysis and data-driven insights, this innovative solution aims to promote spinal safety and enhance overall well-being in various daily activities and occupations. This project introduces a smart backpack designed with kids in mind. Instead of one-size-fits-all, our backpack lets parents manually adjust the carrying capacity based on their child's weight. This means a lighter load for lighter kids! With simple adjustments, we aim to make sure that kids carry only what's comfortable for them, reducing the chances of back discomfort. This user-friendly approach not only eases the load on young shoulders but also promotes healthier habits for kids on the go. In this project, a micro-controller like Arduino is used to control the actions which is included in the process. A Weight Sensor is used to check the weight of the bag and send signal to the micro-controller. A Weight Adjuster is an adjustment device that is used to adjust or fix the weight of the human. An Indicator is added in this backpack to indicate whether it is safe and danger signal.