Executive Summary

In the field of manual materials handling, millions of dollars are lost each year in accidents caused by physical fatigue. The purpose of this project is to design a device for monitoring fatigue in manual material handling operations. Combining our knowledge of electronics, new product design, ergonomics, and human factors, we were able to design and test a product to meet these specifications in hopes of developing a prototype for marketability. While we have only developed a prototype, the economic justification is performed for mass production of the product. Using statistics gathered on the percentage of injuries caused each year due to fatigue and their cost to employers, we concluded a product costing less than $60.86 would be justifiable for manual materials handling companies. If more than 6,215 units are sold per year, this goal is achievable, with profit margins of 23.7% for 10,000 units per year, 61.99% for 50,000 units per year, and 68.50% for 200,000 units per year when sold at the previously mentioned cost.