Grip Force Monitoring System for Day-Long Data Logging in Occupational Settings

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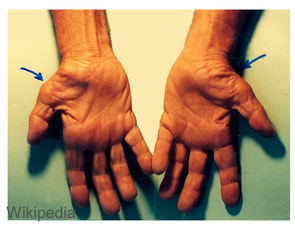
Abstract

The proposed device will be a grip force monitoring system for day long data-logging in occupational settings. This device is designed to be the first step in data collection towards grip force monitoring. Using this device, future studies could potentially lead to preventative aids for common hand/wrist injuries such as carpal tunnel, radial tunnel syndrome, etc.

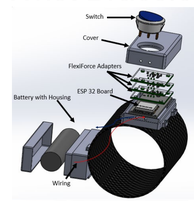


Introduction

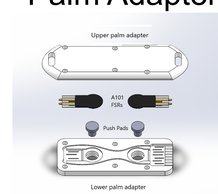
Throughout the years musculoskeletal injuries have been researched and studied. Injuries such as carpel tunnel and radial tunnel syndromes have been discovered and treatments for them have been created. As musculoskeletal injuries become more common and frequent, the need to better understand these injuries becomes imperative. To properly understand and create effective treatments for these injuries, it's important to be able to quantify the strain levels these muscles are experiencing. For example, although excessive grip force is known to be a contributor to these injuries, the exact level remains unknown.

Methods and Materials

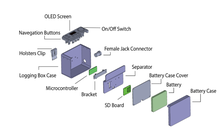
Wrist Bracelet

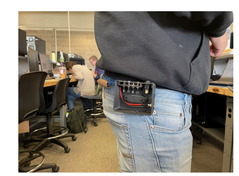


Palm Adapter



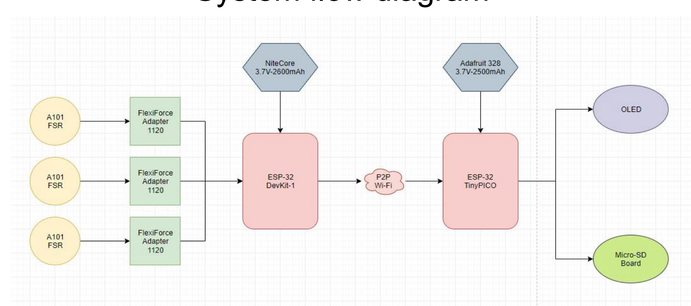
Logging Box



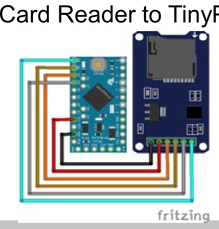


Electrical Components

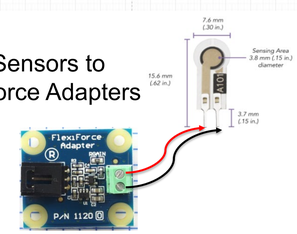
System flow diagram



SD Card Reader to TinyPico



A101 Sensors to FlexiForce Adapters



Discussion

- Never before seen product with potential to bring physical intervention to carpal tunnel patients
- Has ability to record live data throughout the day for up to 9 hours
- Minimally invasive technology that uses wireless data collection to allow normal mobility for user
- User friendly with comfortable wrist attachments and hand sensors

Conclusions

Musculoskeletal injuries pose a threat to many workers who could potentially not be aware of the long run damages. This device can potentially lead to preventative aids to the most common musculoskeletal injuries.

Acknowledgements

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