

Tom Hanks

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SUMMARY

Senior Biomedical Engineering student with numerous and diverse, hands-on, team-based engineering project experiences. Currently devoting 5 hours per week as MSOE Soccer Club VP with full academic schedule. Skills in C, C++, MATLAB, circuit design and analysis, FDA regulations and standards, test design, statistical analysis, NI Multisim and LTspice, and embedded systems.

EDUCATION

B.S. Biomedical Engineering | Milwaukee School of Engineering | GPA: 3.41 | Expected May 20XX

PROJECT EXPERIENCE

Senior Design Medical Device Design Project (Team of 4): Design a medical mouthguard device to monitor the location, frequency, and intensity of forces, automatically sending collected data to dentists for diagnosis or mitigation of sleep bruxism.

- Identified that Force Sensitive Resistors (FSRs) measured required correct range of forces, as well as being small enough to fit inside both the device and the mouth.
- Tested multiple types of user interfaces with Wi-Fi capabilities, including MATLAB, and a URL, and identified ThingSpeak as optimal way of storing and displaying location, frequency, and intensity data.
- Converted FSR resistance output into force output to allow dentists and other medical practitioners to more easily and effectively interpret data:
 - Developed mbed program to read FSR output.
 - Tested sensors using hydraulic press using known forces ranging from 30-175 N.
 - Recorded output with corresponding force from the press.
 - Created calibration curve using results.
- Designed a test pedestal using Solidworks to hold FSR while distributing force evenly across its sensing area as force from hydraulic press was applied and fabricated test pedestal utilizing 3-D printing.
- Tested sensors and statistically analyzed results using Minitab to prove validity of calibration curve.
- Interfaced microcontroller with sensors to convert data into force data using equation derived from calibration curve and sending to ThingSpeak user interface though WiFi communication.
- 3-D scanned and printed a human-modeled mouthguard, and attached FSRs in locations identified and communicated to team by Meharry Medical College dental professionals.

TECHNICAL SKILLS

- Circuit Design and Analysis
- MATLAB
- Multisim and LTspice
- FDA Regulations and Standards
- Test Design
- C, C++
- Data Analytics
- Embedded Systems
- MS Office, Excel

LEADERSHIP | CO-CURRICULAR INVOLVEMENT

VP | MSOE Club Soccer | September 20XX - Current | 4-5 hrs/wk

Member | Engineers Without Borders (EWB) | September 20XX - September 20XX | 3 hrs/wk

Scholar | AEMB MINDS | October 20XX - March 20XX | 3 hrs/wk

WORK HISTORY

Custodial Staff | MSOE | May - August 20XX

Kitchen Staff | Picnic Basket | June - August 20XX

Kitchen Staff | Saz's | August - July 20XX