B. Braun Arm Swelling Project

Overview
B. Braun directed the team to create a device capable of measuring arm swelling. This project included a detailed research analysis of the causes of arm swelling, an extensive concept selection process via a Risk Burndown matrix, and the successful completion of both an alpha prototype (focusing on proving the concept) and a beta prototype (focusing on satisfying our customer needs).

Objectives
The team’s main objective will be to facilitate continuous and accurate monitoring of arm swelling so as to prevent the occurrence of any harmful effects of this condition. Sensitivity of the device, safety of the device, and ease of use are three of the many important customer needs the team must satisfy.

Approach
- Research the topic in detail
- Perform relevant patent search
- Discuss the topic with qualified persons (i.e. nurses, sponsor)
- Brainstorm multiple concepts
- Analytically eliminate concepts using Risk Burndown Matrix revisions
- Prove concept with Alpha prototype using function generator and oscilloscope
- Create realistic design with Beta prototype (sleek, easy to use, comfortable, and wireless)
- Perform tests on both Alpha and Beta prototypes
- Analyse results using ‘Excel’ and ‘Processing’

Outcomes
- The sponsor has an extensive research paper on the causes of swelling and why it can be dangerous.
- The sponsor has detailed designs of a working device to measure arm swelling.
- The sponsor has detailed explanations of why other concepts were not chosen.
- The sponsor has a unique solution to the problem of detecting arm swelling and can improve on the design in the future.
- The final report contains all information necessary to run the alpha and beta prototypes.