PROJECT SPECIFICATIONS

BIOMECHANICS GAIT ANALYSIS LAB

TEAM 3
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**INTRODUCTION AND OVERVIEW**

Dr. John D. Enderle, director of the Biomedical Engineering Department at the University of Connecticut, has expressed his need for an upgraded gait analysis laboratory for the department’s biomechanics course. Currently, the laboratory that is in use mainly focuses on analyzing the acquired data from the gait observations through MaxTRAQ® and MaxMATE® computer software applications. The upgraded gait analysis laboratory will incorporate a more hands-on approach to gait analysis through the use of an integrated force plate, video camcorder(s), as well as an interactive LabVIEW® software program. The force plate is to be designed and built utilizing four load cells that were previously purchased by the department and can withstand up to 300 kg each. Also, the data acquisition must be done using the National Instruments PXI-1031 and BNC-2120 measuring and test equipment. The new gait analysis lab will be ready for use in the biomechanics class beginning in the Fall of 2007. Ideally, the biomechanics students will be able to determine the acceleration, velocity, position, angles, and forces for one complete walking cycle after the completion of their gait analysis laboratory.

**TECHNICAL SPECIFICATIONS**

**Platform Structural Considerations**

- **Size** - Small enough to fit into the biomechanics laboratory
- **Weight** - Light enough to be moved from storage to laboratory
- **Stability** - sturdy enough to withstand a load up to 600 kg

**Image and Data Acquisition**

- Digital camera(s)
- Tripod(s)
- S-video cable
- National Instruments Measuring and Test Equipment
- Personal Computer with Monitor
- User friendly LabVIEW® program
**Power Source**

Electrical Outlet – 120 Volts Alternating Current

**Software**

LabVIEW® Version 8.0  
IMAQ Vision®

**Force Plate Parameters**

Size – 1.2 x 0.6 x 0.15 meters  
or 3.96 x 1.98 x 0.495 feet  
Weight – Light enough for transport from storage closet to laboratory  
Durability – Must be durable and wear resistant with a reasonably long lifetime  
Load Cells – Utilize four previously purchased cells that can withstand a load up to 300 kg each