

## Senior Design Project Description for SPRING 2016

**Project Title: Part Counting System (BR\_COUNT)**

Supporter: Bosch Rexroth

Supporter Technical Representative: ASSIGNED

Faculty Mentor:  ASSIGNED  TBD (check one)

Single Team  Dual Team  (check one)

Personnel (EN/ET):  E,  Cp,  Cv,  4 M,  2 SE

(Complete if the number of students required is known)

Expected person-hours: (250 per student)

### Description of Project:

Currently Bosch Rexroth counts miscellaneous (nuts, bolts, pins, covers, brackets, etc...) small parts manually when they are taken from the shelf for use. The purpose of this project is to design and fabricate a manually fed portable Part Counting System capable of counting the small component parts with > 99.XXXX% accuracy.

### Initial Project Requirements (e.g. weight, size, etc.):

Before the system is designed a baseline study of the current process must be performed. The system will be designed to count hand fed miscellaneous small component parts with a maximum envelope of 3"x3"x3". The system must be able to move around on a push cart so that parts can be counted as they are picked from the shelf. Once counted, parts should feed into a bag that can then be tied shut. The system must have a digital read out of the number of pieces counted. The system must be tested for accuracy and repeatability. The system is to be designed for a 3 year payback justification. The system must utilize Bosch Rexroth products where applicable. Bosch Rexroth products can be found at: [www.boschrexroth.com](http://www.boschrexroth.com).

Commercially available ring sensors and counters such as those manufactured by Balluff (<http://www.balluff.com/balluff/MUS/en/products/ring-sensors.jsp>) and Banner (<http://www.bannerengineering.com/en-US/products/sub/521>) should be used.

### Expected Deliverables/Results:

A report must be provided describing the results of the System concept development, proposal, and approval. Concept assembly drawing with BOM. Costs estimates for all BOM items. Design, procure, build, and test prototype. Prototype testing and capability studies. Final assemble drawing, BOM, and detailed drawing of all make parts and/or sub-assemblies. Final cost estimate and justification for complete assembly. Build and install a final system.

### List here any specific skills or knowledge needed or suggested (If none please state none):

None