UNC CHARLOTTE
The WILLIAM STATES LEE COLLEGE *of* ENGINEERING

Senior Design Project Description for FALL 2016
Project Title: Automation of Knit Cam Manufacturing (VPL_AUTO)

Supporter: Vanguard Pai Lung
Supporter Technical Representative: ASSIGNED
Faculty Mentor: ___X___ ASSIGNED _____ TBD (check one)
Single Team ___X___ Dual Team _____ (check one)
Personnel (EN/ET): ___2___ E, _____ Cp, _____ Cv, ___3___ M, ___2___ SE
(Complete if the number of students required is known)
Expected person-hours: (250 per student)

Description of Project:

Vanguard Pai Lung has been manufacturing precision, quality and innovative custom designed knitting machines in the USA since 1916. The company has to compete with suppliers all over the world and is in need of a plan to upgrade one of the manufacturing lines with automated equipment. This project will review and analyze the steps required to manufacture a knit cam and develop a plan to automate the manufacturing and inspection processes.

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

The knit cam is used in Vanguard’s circular knitting machines to guide thousands of knitting needles through a track that has been milled in the knit cam. The needles then create tubular fabric that is used to make t-shirts and other knitted products. There are several steps required to produce the knit cam. Each step must be reviewed and analyzed. The team must visit the facility in Monroe NC to perform this review. Once the analysis is determined, a plan must be developed to automate each step of the manufacturing and inspection processes while maintaining the quality of the product.

Expected Deliverables/Results:

The deliverable will be a report summarizing the current production and recommendations to automate it. The recommendations will include cost estimates and production throughput analysis as well as return on investment.

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

None.