Kager Industries & Angelo State University - Project Summary

| **Employer Partner** | Kager Industries | **Designated Company Contact** | Robert Kager  robert@kagerind.com |
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| **Project Name** | CNC G-Code Upload/Download Program – Program to load G-Code programs into and out of CNC Machinery. |
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| **Company Description** | Kager Industries is a swiss–type screw machine shop specializing in quality machined parts and a fast turnaround time. Kager Industries has been serving the United States as a manufacturer of top quality small component parts since 1967. We fabricate electrical connectors, sockets, contacts, small shafts, bushings, and screws. We make parts for fishing reels, archery, the medical industry, government projects, the automotive industry, and even just for hobbies and toys. |
| **Project Description** | Kager industries has tried several software and hardware methods to upload and download g-code into and out of our CNC machinery. This is a very critical and necessary process. All methods we have tried have had reliability issues.  Currently we are looking for help developing a program that will save g-code out of the CNC machine and load g-code into the CNC machine.  G-code is transferred through a RS232 25 pin serial port on the CNC. Then through a cable and any necessary adaptors or dongles, then to the computer using the USB port. Documentation on the serial interface to Citizen Cincom CNCs will be provided.  Saving: The g-code is to be saved at a specified location on the computer. The program to be saved is selected on the CNC and outputted through the cables described above and into the computer.  Loading: The G-code to be loaded is selected on the computer and sent into the CNC machine through the same ports and cables. Once received on the CNC, it will be seen listed with the other programs already on the machine.  The main goal of the project is to transfer MSDOS encoded text files containing GCODE from MacOs Computers in our office, to the CNC machines out in our shop. To do this we will likely need some sort of intermediary computer such as a laptop or a raspberry pi which will have the upload-download program on it. We can then take this intermediary computer out into the shop and plug it into the CNC for the GCODE IO.  Depending on the specifics of the proposed program, it may be ideal to have some sort of integrated networking in order to be able to manage the Gcode IO program directly from the office computers, as the intermediary computer may not have a UI (eg, a raspberry pi). |
| **Final Deliverable(s)** | In a team of 3-5 students, each group will deliver a final report and  presentation including the following key components:  Project Report: Including Requirements Analysis Document, Design  Document, Installation Instructions, User Manual, Presentation  Project codes and executables |