

15:52:05

OCA PAD INITIATION - PROJECT HEADER INFORMATION

08/15/90

Active

Project #: E-24-611                      Cost share #:                      Rev #: 0  
Center # : 10/24-6-R7008-0A0      Center shr #:                      OCA file #:  
Contract#: 590-1541                      Mod #:                      Work type : RES  
Prime #:    Document : OTH  
Contract entity: GTRC

Subprojects ? : N  
Main project #:

Project unit:                      ISYE                      Unit code: 02.010.124  
Project director(s):  
ZHOU C                      ISYE                      (404)894-2326

Sponsor/division names: SME MFG ENGR EDUCATION FDN      / DEARBORN, MI  
Sponsor/division codes: 500                      / 124

Award period:      900525      to      910524      (performance)      910524      (reports)

Sponsor amount	New this change	Total to date
Contract value	17,195.00	17,195.00
Funded	17,195.00	17,195.00
Cost sharing amount		0.00

Does subcontracting plan apply ?: N

Title: SME- MEEF GRANT

PROJECT ADMINISTRATION DATA

OCA contact: Kathleen R. Ehlinger      894-4820

Sponsor technical contact                      Sponsor issuing office

KEITH BANKWITZ, MANAGER                      DORA MURRAY, GRANTS COORDINATOR  
(313)271-1500                      (313)271-1500

MANUFACTURING ENG. EDUCATION FOUND.      MANUFACTURING ENG. EDUCATION FOUND.  
ONE SME DRIVE                      ONE SME DRIVE  
P.O. BOX 930                      P.O. BOX 930  
DEARBORN, MI 48121                      DEARBORN, MI 48121

Security class (U,C,S,TS) : U                      ONR resident rep. is ACO (Y/N): N  
Defense priority rating : N/A                      N/A supplemental sheet  
Equipment title vests with: Sponsor                      GIT X

Administrative comments -

INITIATION OF PROJECT. FINAL REPORT MUST BE SUMITTED FOR SPONSOR REIMBURSEMENT



GEORGIA INSTITUTE OF TECHNOLOGY  
OFFICE OF CONTRACT ADMINISTRATION

CO.

NOTICE OF PROJECT CLOSED GIA 30076

SK. 860 2-

Closeout Notice Date 07/23/91

Project No. E-24-611 \_\_\_\_\_

Center No. 10/24-6-R7008-0A0\_

Project Director ZHOU C \_\_\_\_\_

School/Lab ISYE \_\_\_\_\_

Sponsor SME MFG ENGR EDUCATION FDN/DEARBORN, MI \_\_\_\_\_

Contract/Grant No. 590-1541 \_\_\_\_\_

Contract Entity GTRC

Prime Contract No. \_\_\_\_\_

Title SME- MEEF GRANT \_\_\_\_\_

Effective Completion Date 910524 (Performance) 910524 (Reports)

Closeout Actions Required:	Y/N	Date Submitted
Final Invoice or Copy of Final Invoice	Y	_____
Final Report of Inventions and/or Subcontracts	N	_____
Government Property Inventory & Related Certificate	N	_____
Classified Material Certificate	N	_____
Release and Assignment	N	_____
Other _____	N	_____
Comments _____		

Subproject Under Main Project No. \_\_\_\_\_

Continues Project No. \_\_\_\_\_

Distribution Required:

Project Director	Y
Administrative Network Representative	Y
GTRI Accounting/Grants and Contracts	Y
Procurement/Supply Services	Y
Research Property Management	Y
Research Security Services	N
Reports Coordinator (OCA)	Y
GTRC	Y
Project File	Y
Other _____	N
_____	N



## **Report for Faculty Development Grant**

Submitted to

SME Manufacturing Engineering Education Foundation

Oct. 3, 1990

by

Chen Zhou

Georgia Institute of Technology  
School of Industrial and Systems Engineering  
Atlanta, GA 30332-0205

I received a Faculty Development Award of \$500 from SME Manufacturing Engineering Education Foundation, funded by the Lockheed Excellence Fund. Originally, I planned to attend CIMCON-90 sponsored by National Institute of Standard and Technology. However, by the time the fund was awarded, the conference was over. In August, I proposed to SME to attend Design Automation and Flexible Assembly Systems Conferences in Chicago. Which was approved by the SME. The objective of trip was to learn more about new technologies in automation and to talk to the educators from other institutions about manufacturing engineering education and setting up of the laboratories. The objective was well accomplished. The knowledge gained has been used to build the manufacturing laboratory as proposed. The laboratory consists of a robotic CNC machining cell, a measurement/inspection station, an AS/RS station, a manufacturing simulation station, a robotic assembly station and a complete material handling system.

We have finished laboratory design. Currently, we are installing equipment acquired in past few months, interfacing with the computers, installing software, programming equipment and setting up the computer network. The facility will be used in current courses such as Industrial Application of Robotics, Materials Handling and Computer Integrated Manufacturing courses. It will also be used in upcoming Computer Control in Manufacturing, Process Planning and Measurement and Tolerancing.

The keys in developing excellent manufacturing courses are good laboratory support and the faculty awareness of recent development and future trend in education and research. In the development of the new laboratory and the expansion of the curriculum towards manufacturing, it is vital for the faculty member to look at other facilities and curriculums. In the Conference, I sit in many technical sessions which emphasize automation in manufacturing and assembly systems. I also had chance to talk to educators from different institutions, such as University of Illinois at Chicago, Carnegie-Melon University, University of Michigan-Dearborn, University of Maryland, University of Indiana, Purdue University and Pennsylvania State University.

I also contacted the technical people from Rapid Acquisition of Manufactured Parts (RAMP) project in South Carolina Research Authority. The lab in Georgia Tech will be basically a simplified model of the Cherry Point Naval Aviation Depot, which was developed using RAMP technology. We plan to have a visit to North Charleston (SC) to visit another RAMP project site.

We have learned from many mistakes made in other institutions and laboratories. These includes maintainability, safety concerns, utilization, network management, advantages and disadvantages of university site.

Since the real product of a university laboratory are knowledgeable students, concepts and safety are more important than precision and power. As a matter of fact, low power and medium precision equipment is even more desirable than high power and high precision ones due to higher safety and lower maintenance requirements. The students are not professional operators (they probably will not be in their life). For these students, the chance of errors is very high. With educational type machines, the mistakes do not tend to generate hazardous results. These type of equipment also cost less. Hence, the majority of the newly added components are small and educational type.

We also realized the importance of network management. Since the computing environment will change constantly (adding new equipment, change of software, new development of software), a person responsible for the network is necessary. He will maintain and record all the changes and guaranty the continuity and availability of the facility.

All of the contacts and talks helped me tremendously in the development of our manufacturing laboratory. We appreciate SME and Lockheed for the funding support. Without this conference, we would definitely make more mistakes in the laboratory development.

# **PROJECT REPORT**

Submitted to

SME Manufacturing Engineering Education Foundation

January 28, 1991

by

Chen Zhou

Georgia Institute of Technology  
School of Industrial and Systems Engineering  
Atlanta, GA 30332-0205

## **CAPITAL EQUIPMENT**

In 1990, the school of Industrial and Systems Engineering at Georgia Institute of Technology was awarded CADKEY and CADKEY Solids software sponsored by CADKEY Inc. and PMX Software award sponsored by PMX, Inc.

After we learned the awards, we started to contact CADKEY Inc. The acquisition took some time. We just received the software in January, 1991. We plan to install the software in one of the COMPAQ 386/SX computer in Material Handling Laboratory. At present, the software will be used as general purpose CAD software for solid modeling of three dimensional components. The utilization of the software will be increased when the proposed process planning course is offered next year.

We have also contacted PMX Inc. So far, we have not received the software. When the software arrives, it will be installed in a COMPAQ 386/SX computer which is connected to an educational CNC machine tool. The software will be used in the course Computer Control in Manufacturing Systems.