



# **Measurements and Instrumentation Through Manufacture of Sheet Metal Star**

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**Research Experience for Teachers**  
Enhancing Teacher Knowledge and Skills in Advance Manufacturing  
**Texas A&M University**  
**2019**

# PROJECT INCORPORATION

1. Students will be tasked to make a Star out of Sheet Metal based on a CAD Drawing that is given to them
2. During Computer Integrated Manufacturing, before CNC Machines Unit
  - a) CIM is after having taken Principles of Engineering
  - b) Will be a new lesson for the students
3. Material covered satisfies TEKS 130.357 Metal Fabrication and Machining 1



# ACQUISITIONS NEEDED

- This equipment will be procured through class budget, looking to get reimbursed by grants
- Total Project Cost per semester (including Sheet Metal) \$1,800
  - Consumables (Sheet Metal \$50)

*Baleigh Industries  
3-1 Combinational  
Sheet Metal Brake*



**\$795**

*Baleigh Industries  
Notch Cutter*



**\$755**

*Tooluxe  
Resistance Spot Welder*



**\$160**

# SAFETY STRATEGY

Begin lesson on Sheet Metal Theory in class

Divide class into 3 groups for lab participation

Groups will be successful upon completing Stars per dimension specs given in CAD Drawings at beginning of lab

1.

2.

3.

4.

5.



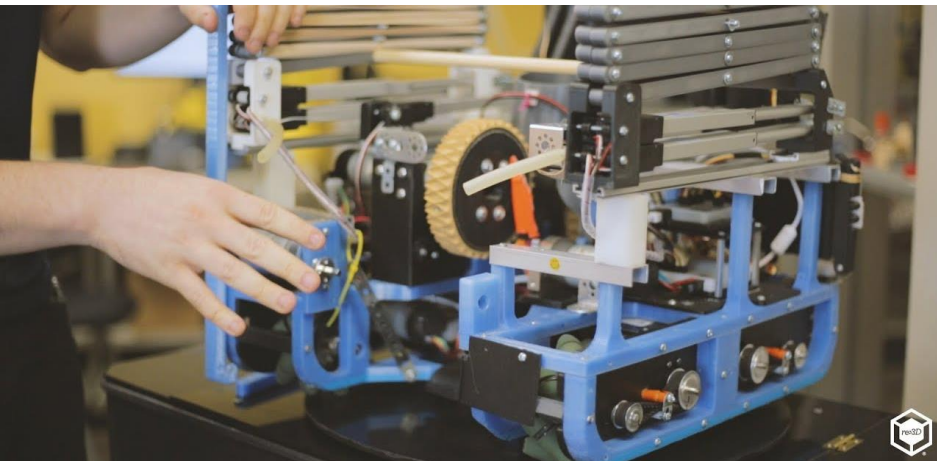
COMPLETE!!

Select 3 students to teach safety practices and equipment to. Will be Teacher Assistants (TA)

Each TA will be assigned to a group to teach and monitor

- Project will be over 2 weeks
- Average CIM class is 18 Students
- 15:2 Male/Female Ratio
- Sophomores, Juniors, Senior students





# CONTINUED APPLICATIONS

- Students will now know basic sheet metal work
- Skills can transfer to
  - Robotics Competitions
  - Engineering Competitions
  - Senior Capstone Courses (Senior Design)
- Can be carried over to skill trade if desired after High School

