ILLINOIS INSTITUTE OF TECHNOLOGY

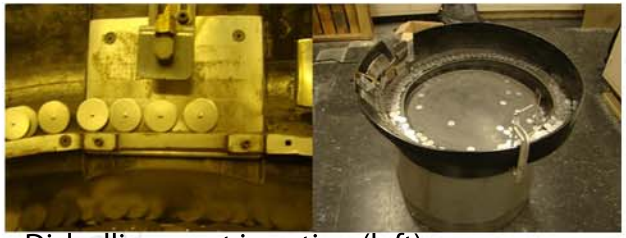
Conclusion:

Mechanical:

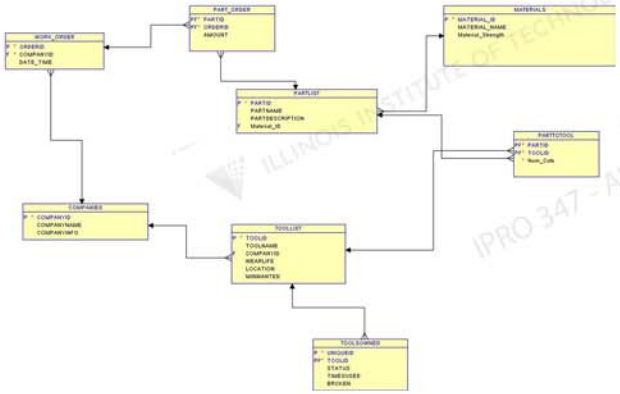
- Tests run on the prototype show that automation of the welding process is a practical expectation.
- The company will hopefully be able to construct a real feed mechanism device from our prototype.
- A worker will no longer be required.

Database:

- The company will be able to eventually estimate how long tools will last and when they will need to be replaced.
- Using the OCR technology, the company will also be able to quickly feed large amounts of "back-data" into their tool management software.



Disk allignment in action (left),
Vibratory Bowl (right)



Results:

Mechanical:

- Designed a prototype that will automate the feeding of disks into a welding machine
- Able to orient all of the disks into a one-track system using a vibratory bowl provided by the company.
  i. The track has a section that is interchangeable, depending on the disk size.
- A flipper mechanism is then used to divert the newly sorted discs into the welding assembly.

Flipper (left), Track (right)

Database:

- The current shop management system that Smith & Richardson possesses will be used to keep track of tool locations.
  - o They will use an OCR program to input data from their paper tool sheets.
- Our group developed a supplemental Microsoft Access application that can calculate and predict tool-wear life.
  - o Tool-wear life is calculated using an estimation process:
    Quantity * Material Coefficient * Number of Cuts = Approx. Use of Tool
  - o Needs to store a sufficient amount of data for each tool before it will be able to provide accurate estimations of tool life.

IPRO 347

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