



Nick Lachen
 Physics
 Ames High School
 Accumold

Part I: Micro Molding

- Opened in Ankeny, 1985
- Leader in small plastic pieces (created the Micro-Mold® process)
- Parts as small as .3 millimeters
- Products used in electronics, medical, automotive, and more

Part II: Job Specifics

- Worked on various projects including:
- Investigate why a certain part is defective
- Narrow down possible culprits causing part defect
- Investigate feasibility of automating the quality check of a part

Part III: Introduce the Problem

- Determine a way to automate the quality check for a part, specifically, to make sure that the amount of extra plastic on the edge is below a certain threshold

Part IV: Background

- Understand mathematical functions (trigonometry, slopes, angles, circles, triangles, arcs, etc.)
- Understand the various functions and limitations of the business's software and hardware (cameras, lighting, program functions, etc.)

Part V: Business Solution

- Contacted the creators of the software and cameras for help.
- Try a different solution (the solution we came up with isn't consistent enough due to contrast, resolution, & brightness issues)

Part VI: Student Solutions

- Use the geometries of the part to determine the scale and quickly find if the extra plastic is too long.
- Include a reference scale in the part's mold to easily determine the amount of extra plastic.