Overview
One of the products TRS Technologies, Inc. manufactures is a single crystal piezoelectric material for medical ultrasound imaging that is rapidly replacing the existing ceramic components. Due to the fast growing technology, TRS Technologies, Inc. must improve its capabilities to produce the customers’ difficult specifications for these components. A precision chamfer along all four edges in the longest dimension is another new difficult feature requested to the company.

Objectives
The main goal of the team was to redesign or find a new the chamfering process in order to the size and frequency of chips, to improve the accuracy and repeatability of the process and to reduce the cycle time required to chamfer each part.

Approach
- Obtained background information on the current process TRS uses
- Visited the facility and talked with sponsor to gather the customer needs and requirements
- Brainstormed, compared different ideas and picked the most ideal one
- Designed CAD model in SolidWorks
- Created a prototype using an outsource
- Tested with a grinding machine (sharp SG618 2A) in Fame Lab in Leonhard
- Looked into a microscope in order to observe the chipping
- Succeeded to create 45 angles on the edge and decreased the cycle time, but resulted in chipping

Outcomes
- 45 Degree chamfer was obtained
- Process time for 1 crystal to be chamfered reduced from an average of 7.5 minutes to 1.5 minutes
- Cracks in chamfer exceeded tolerance of 35 microns