The Akron Brass Company, a primary producer of firefighting equipment, has discovered a problem with their monitor ball bearings. Raised burrs appear around the races of the bearing when the monitor oscillates leading to the inability to separate the components. Akron Brass is currently developing an automated monitor system that will oscillate more frequently; therefore, raised burrs will potentially appear sooner and more often. Team Akron Brass’s objectives were to understand the causes of the raised burrs by analyzing the failed monitor’s bearings and to propose a more robust design. Results of the analyses led to a design that reduced burr formation. From concept selection methods we have chosen the angular four point contact bearing because of its increased load capacity and compatibility with the current manufacturing process.

After testing and review, our group, along with Akron Brass, has determined that the proposed design does eliminate burr formation. However, the ball has formed a groove that could be potentially detrimental to the monitor. Our team suggests that Akron Brass perform a study on whether it is feasible to change the material to a stronger metal. Along with a material change, we recommend that the proposed design should be integrated into the monitor.