



FIRE FIGHTING ENTERPRISES FIRE DETECTOR

PROJECT: Fire Fighting Enterprises Fire Detector
CLIENT: Product Partners
DATE: 05 April 2007
DURATION:



PROJECT DETAILS

Reaching your goal can often be a struggle. Your original vision can sometimes be clouded like it was in a blanket of thick smoke, but occasionally the answer comes out of the blue when you least expect it. This is what happened to the designers at Product Partners when they faced a complex dilemma in the early stages of designing an industrial fire detector.

Fire Fighting Enterprises fire detector is for use in retail, recreational and commercial premises. The product was taken to Product Partners who researched and designed the engineering specifications. The device comprises of two pieces of equipment; the System Controller and the Detector. The System Controller would project a laser beam across the warehouse to the Detector. In the event of a fire, smoke would interrupt the path of the laser beam and sound the alarm.

However, an alignment problem between the two parts occurs when environmental changes cause the building to expand and contract. The misalignment of the beam up can be up to 5 degrees, severely handicapping the effectiveness of the alarm. This was a significant hurdle to the development of the product and the solutions weren't easy or straightforward.

Incorporating an automatic gimbal mechanism into the design would rotate the angle of the laser to the correct

alignment. However, this solution was one which would involve complicated specifications, incurring a high cost. The designers at Product Partners were searching for an alternative until, one day, a member of the team rented a car and was struck by inspiration. The wing mirror on the car had an automatically adjustable gimbal mechanism. When they dismantled the mirror, they discovered exactly what they were looking for. So, after scouring car part catalogues, they found the correct specification gimbal and started to incorporate it into the design.

This method, however, was an unusual one and its functionality had to be proven. So, Product Partners took their design to Ogle Models and Prototypes to prove the fit and function of the parts. The designs of the 16 components of the detector unit were handed over to Ogle in the form of SolidWorks files. Ogle constructed the parts using SLS (selective laser sintering) technology. This is a process that uses an Argon laser to melt finely powdered nylon 12, one very fine layer at a time. The number of parts in the FireRay design, and how they fitted within one another, meant that SLS was the best manufacturing method for this particular model. Because the process is fully self-supporting, it can produce parts with very complex geometries and it means that parts can be built within other parts. No other method would achieve this caliber of prototype.

Ogle has a reputation as one of the best in the business. One of the reasons for this is because they know how to make the most out of build volume. Because the parts were being built within one another, accuracy was extremely important to achieve and Ogle ensured this by orientating the Detector diagonally. The parts were also constructed at the same time, making it extremely cost-efficient, whilst still maintaining outstanding results.

Because their designs are so revolutionary, Product Partners require the utmost in discretion. The end results are of the highest importance to them because their clients at Fire Fighting Enterprises wanted impressive results. Product Partners knew they could rely on Ogle because of their talent, experience and reputation. Product Partners may have had some unusual specifications, but Ogle consistently provides each client with a bespoke solution, guaranteed to exceed expectations.

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