

Customer Success Story



Advanced Solutions

Smart Home Controller Application

Design Challenge

Customer reached out to Bivar for assistance to design and manufacture a custom light pipe ring for intelligent smart home controller application. This light pipe ring is part of a product which connects the home together, linking temperature control, home alarm, radar technology to identify capacity in each room, smart speakers, and more. The light pipe ring sits around the 360° control knob. It is illuminated by several RGB LEDs and even light distribution is critical to the design. No IP rating is required for this design as it will only be installed inside indoor applications.

Design Solution

The challenge of this design is to ensure even light distribution along the light pipe ring with several RGB LEDs being approximately 4mm away from the lens output source. This design consists of two pieces, one being a reflector to help channel the light and the other being the physical lens output source. This requires a great deal of simulation and physical testing to properly verify the design conforms to the listed requirements.

Bivar Advantage

After conducting a focus group study for product experience, we learned that the initial two-piece design could be further optimized by reducing the light ring shape to a light arc shape. Bivar was able to scale the product down to a one-piece design. This yields a win-win situation for both the customer and Bivar. We are always eager to bring customer ideas to life, providing them a competitive edge while exceeding their expectations.

Start Your Custom Design Today

Ask a Design Expert