BuzNet Router Enclosure Design

Overview
Buzby’s current enclosure is in need of redesign to improve optimization, aesthetics and manufacturability. The enclosure is also in need of an effective mounting system that allows the BuzNet router to be easily installed in a variety of scenarios.

Objectives
The team was tasked with designing an enclosure and a mounting bracket for the BuzNet router that can be produced by plastic injection molding. The housing needed to be aesthetically pleasing while being minimally intrusive. The mounting bracket needed to be able to securely attach to a variety of ceiling types and allow for easy installation.

Approach
- The team met with the sponsor to gather customer needs and initial specifications
- Weekly meetings with the sponsor kept them involved in the concept and design process
- The team performed external research which included existing products and a patent search
- The team developed several concepts and presented them to the sponsor for feedback
- Concept selection was verified through Pugh matrix using the top three designs.
- Using FDM, an initial prototype was made to determine the strengths and weaknesses of design
- Continued iterative process of making more prototypes between the testing of each design
- An FEA analysis was performed on the mounting bracket
- The final prototype was successfully tested by mounting it to multiple ceiling types

Outcomes
- The new design is more attractive and less intrusive than the current Buzby router
- The new design is mass-producible, unlike the current design
- The new design has an easy mounting system for installation on multiple ceiling types
- All CAD drawings, reports, and testing analysis were provided to the sponsor along with a manufacturability report