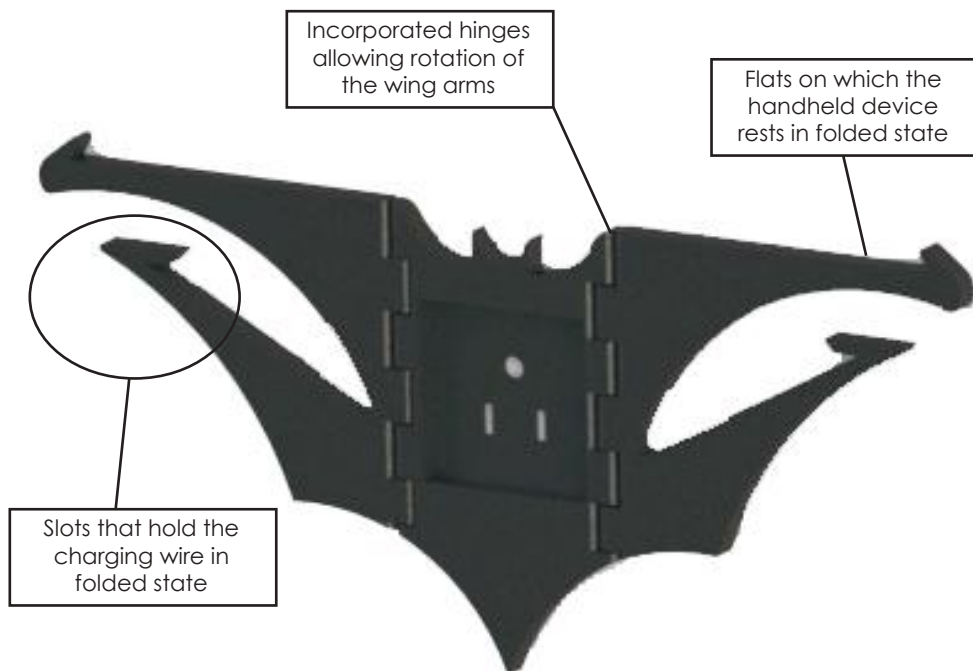


DESIGN CHALLENGE

Electronic Outlet Support Redesign

PROBLEM STATEMENT

The current product is a good concept presented with detailed design considerations that can effectively aide manufacturing, but it has a few shortcomings that can severely affect its deployment. Firstly, the current design has a number of segregated parts which not only increase the assembly cost but also crucial points that can induce failure. Secondly, the design itself is outlet dependent, viz. it can be only connected to locations where the outlet socket has a particular type of plate to support the structure. Lastly, the design is not aesthetically pleasing which in turn affects its overall appeal and therefore market penetration. All these challenges can be easily overcome by incorporating additive manufacturing techniques as demonstrated by the proposed design.



PRODUCT DESCRIPTION

The newly proposed design was printed using the Ender3v2 printer in XY orientation. The product was printed with a layer thickness of 0.1 mm and an infill percentage of 12. The product was printed using PLA, weighs around 28 grams and took about 4 hours 35 mins to print. The newly proposed outlet support is a lightweight, socket plate independent, functional, and aesthetically pleasing product that is designed to flatten in the shape of a 'Batman Logo' when not in use.

The new outlet support was designed with heavy reliance on functional complexity offered by Additive Manufacturing processes as the design incorporates printed assemblies. Incorporation of movable parts in the design itself facilitated reduction in smaller parts and helped eliminate the tray that held the phones present in the earlier design. Moreover using functional consolidation, parts that held the phone and coiled the wire in the earlier design were redesigned to be incorporated in a single functional mechanism further reducing the number of parts.

NEW FEATURES

The product is designed to serve all standard sized handheld devices and is socket plate and charger agnostic. The product uses the charger pins as a support mechanism to hold itself near the wall socket rather than using the socket plates. This allows for easier use in places where the socket plates required in the earlier design are not present. Given the product's reliance on pins of the chargers its being used with, the product has been designed to accommodate all NEMA standard connectors.

The product flattens to become a 'Batman Logo' when its not being used for support during charging. This not only makes the product significantly aesthetic but is also aimed at increasing the general sustainability associated with the product. This is because the given aesthetic increases the emotional values attached with the product for certain users, which is intended to increase its usage life cycle which in-turn increases its sustainability. The same approach can be used for other logos and designs as well.

Socket plate & charger agnostic design



HOW IT WORKS?



Not in use condition.
Support hangs in a flat state via the charger.



Not in use folded condition.
The cord can be coiled and phone can be placed on the support.



In use condition.
Cord coiled around the arm-wings.



In use condition.
Cord coiled in and phone being used on the support.