Public summary

Redesigning of the BSG-TF

Jitske Verwaal
Industrial Design Engineering
University *of Twente*
The Netherlands
Topic: redesigning

Background information

This Assignment was offered by WiTechs. WiTechs is a company that develops and produces machines for the fabrication of steel wire, these machines are used in plants all over the world. WiTechs is working on a rebranding. For this rebranding they have a new more recognisable style for their machines. With this assignment I rebranded one of their existing machines to their new style also taking the costs and safety of the machine into account. The BSG-TF, the machine redesigned for this assignment is used to put a coating of lubricant powder on the steel wire before the wire is further processed by being drawn to make the wire thinner. The machine is used in an automatic in-line process.

Figure 1 the current BSG-TF (WiTechs)

Objective

The aim of this assignment is to redesign the BSG/TF to fit the new style of WiTechs and reduce costs.

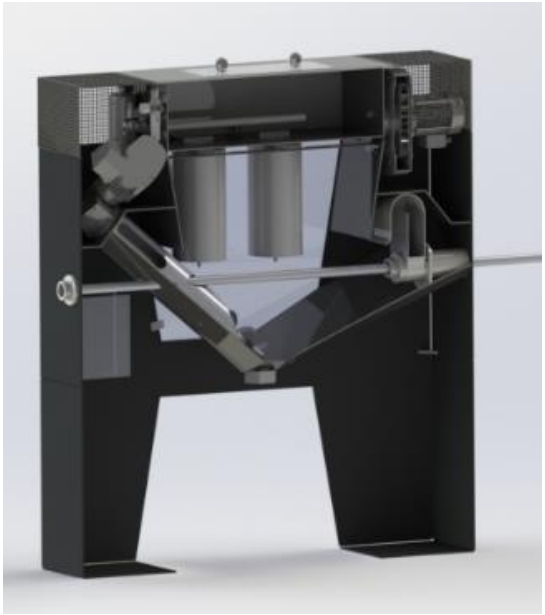

Figure 2 internal redesign BSG-TF

Approach

To redesign the BSG-TF firstly an analysis was done from the new style, functioning of the machine, and competition. From this analysis requirements where conducted. These requirements were used to ideate. The ideation was done in split up in functional parts where a separation was made in the external and internals. The solutions found in the ideation were analysed and rated to find the best options and use those to create concepts. These concepts where investigated together with WiTechs. After which one concept was worked out further into a more final design. This design was than evaluated on the user interactions, safety, costs, and manufacturability.

Results & limitations

The redesign resulted in a new external and a new internal design. The internal changes reduce the number of parts needed by reducing from two to one screw conveyor. Externally the doors to refill the machine have been changed into a safer design where the moving internal components can not be touched by accident. Furthermore, the motors and ventilators that were placed on the outside of the machine are now more integrated into the machine. Additionally, the maintenance of the machine is made easier since now there is no need to use a crane to lift off the top when replacing the filters. Next to this also the external styling changed to fit in with the redesign by making use of a blocked shape together with obliquely edges and a handlebar similar to the handlebars used in the other machines. Although the redesign successfully improved the safety and reduced the complexity and number of components if it reduces the costs should be further investigated.

Figure 3 External redesign BSG-TF

Conclusions & Recommendations

This redesign succeeded into fitting in with the new style, improvements to reduce costs are made, however, to evaluate whether the costs are reduced more research should be done. Before this product can be introduced to the market more refinements should be made and the manufacturing should be worked out further. Additionally, the required documentation should be made. More improvements to reduce costs could be further investigated, by researching the minimum thickness of the steel plates that is needed for the strength.

References

WiTechs. (n.d.). *BSG-TF.* Retrieved from WiTechs.com: https://www.witechs.com/products/wire-coating-lines/bsg-tf-3/