

Abstract

The purpose of this thesis is to come up with an overall design solution for Robot Solutions Scandinavia's (RSS) knife grinding machine, where aspects such as usability, functionality, ease of cleaning and servicing are being considered. The robotic machine is aimed for the slaughter industry and will replace today's manually performed grinding operations. An implementation of this knife grinding machine will reduce the costs and also improve the ergonomic working environment for the employees. Today, a working prototype is fabricated and next step in the development process is to redesign the machine to make it more sellable on the market.

As a first step a pre study is executed that consists of observations, interviews, research regarding safety standards, potential customers and competitive products on the market today. Product specifications regarding both technical and design objectives are stated.

Concept generations for module placements, framework construction and an overall machine design is performed and one design solution is selected for further development. CAD models of all parts are made and aspects such as ease of cleaning, service and usability are implemented. In order to communicate the appearance and how the functions are integrated in the design, a prototype in the scale of 1:5 is fabricated with pinewood sticks, paperboard and acrylic glass. The different modules are further developed and improved as the project proceeds and in addition, potential materials and manufacturing methods are explored.

The final concept design is adapted to RSS's design vision and stated product specifications and the result is presented as CAD models, a physical model and rendered pictures.

Keywords:

Product development, automatic knife grinding, Robot Solutions Scandinavia, robot, slaughter industry