

ABSTRACT

Tempe is a typical Indonesian food that has a lot of nutritional content so that tempe consumers spread to America and Europe. There are seven core stages in the process of making tempe which are divided by 2 area; wet area and dry area. Wet area is the production area by using water in each process and it's need much cycle time than dry area. The cycle time of wet area is 115 minutes and it spend 1.085 liter of water to produce 60 kg of tempe. One of the process of wet area is separation of soybean's skin using water as its media, with the cycle time is 45.59 minutes. The object of this research is the wet area on tempe production in Rumah Tempe Indonesia, Bogor to reducing the cycle time by designing soybean peel separator container. This research was conducted using reverse engineering method by performing in-depth analysis of the tools used and developing the existing peel separator equipments based on user needs. By performing an in-depth analysis using product decomposition of soybean peel separator equipments, 48 possible combinations of concepts were developed to add the features of the concept to be developed. Concept screening and concept scoring are done to select one of the best concepts from possible concepts. The result of the selected concept of the soybean peel separator is the need for a propulsion motor as a replacement energy source for the operator's power and the mechanisms for separating skin and soybeans using water force from bottom of the container. After that, the concept will be done by make a prototype and testing it in Rumah Tempe Indonesia with the result of cycle time is 70.77 minutes for all processes in wet area, which means the cycle time is decreasing 39%.

Keywords: cycle time, tempe, soybean peel separator, reverse engineering, redesign methodology