Development of Keropok Keping Drying Machine for Small & Medium Enterprises (SMEs)

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Abstract. Keropok is a traditional cracker product in Southeast Asia. Keropok is made from fish, squid or shrimp mixed with starch or sago flour and eggs. In Malaysia, keropok industry is widely operated at the coastal areas where the fish/seafood supply can be easily accessed. Keropok need to be dried before the packaging process. At the moment, conventional method was used where the keropok is arranged under the sunlight on a board called pemidai. The method is considered less hygienic since it exposed to the dirt and dust and less practical especially during the raining season. This research is focusing on a new automation technique to solve the problems. Rotary drum with internal holder was developed as the drying machine. Keropok keping (types of keropok) was selected to be experimented using the machine with three different rotating speeds. Preliminary experiment result shows that the broken rate of the keropok keping was around 27% of the total weight. The development of new automation system is hoped to improve the small medium enterprises (SMEs) in Malaysia.

1. Introduction

Fish cracker is a traditional product for the countries in Southeast Asia. The cracker is known as kaogrieb in Thailand; krupuk, kerupuk or kroepoek in Indonesia; bánh phồng tôm in Vietnam and keropok in Malaysia [1]. Keropok is usually made from fish, squid or shrimp which mixed with starch or sago flour, and egg. Salt, sugar, garlic and monosodium glutamate (MSG) is added as a flavour ingredient. In Malaysia, the keropok industry is widely operated in the coastal areas of Kelantan, Terengganu, Pahang, Johor and Kedah. This is due to the high fish/seafood supply, high temperature and windy area that contributed to the sustainability of the industry. The demand for this industry is constantly increased. According to [2], one of the keropok entrepreneur in Kedah managed to achieve a production value of RM100,000 per month. Keropok losong and keropok keping is the most popular and highest in demand compared to other types of keropok.

In keropok industry, most of the production process is conducted by semi-automated machine such as mixing and grinding. However, the drying process is still conducted manually. In conventional method, the keropok is arranged and dried on a board called pemidai. As shown in Figure 1, the keropok is placed on the pemidai under the sunlight so that the keropok is exposed to the heat and wind to be dried. At the moment, the method is considered the most convenient and practical. Besides, the operating cost is considered cheap. However, this method is exposed to the low level of hygiene.