

# 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

