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Development of a Dough Dividing Machine with Counting Ability for Local Bakeries in Sri Lanka

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Abstract

Bakeries often require the assistance of machines in order to effectively and efficiently produce baked goods to supply to customers. However, in countries like Sri Lanka, most bakeries still carry out the dough dividing process manually. Importing a dough dividing machine is expensive due to the added tax and delivery charges. This report looks into the development of a dough dividing machine that has counting ability for local bakeries in Sri Lanka. Some components of this model machine are different to those of the machines available abroad and this is to create a more cost-effective machine. The calculations were carried out for a 2/3 scaled down version of the actual machine, and included calculations and dimensions for the hopper, gears, shafts, coupling, chain & sprocket and information on the selection of the motors and bearings. SolidWorks software has been used to design and carry out finite element analysis on the machine components. In order to count the dough balls produced, Arduino IDE software has been used to write the code for the counting mechanism, which uses an Arduino UNO along with an IR sensor and display to count and display the dough balls that leave the exit of the rounding plate. The ideal speed to rotate the rounding plate was estimated through data obtained from experimentation.

Keywords: *Dough dividing machine, Bakeries, Counting mechanism, Rounding mechanism, Sri Lanka*