



317/C

## Development of an automatic industrial idly making machine

R. Jansanth\* and R. J. Wimalasiri

*Department of Mechanical Engineering, The Open University of Sri Lanka, Nawala,  
Sri Lanka*

The commercial production of 'idly', a South Indian healthy food variety, involves long working hours in a heaty environment and physical strain on the hands. An automatic idly making machine which could be used by industries, hotels/food outlets, etc., to make idly, efficiently and effectively, was designed and developed in this study. The machine was designed and developed using SolidWorks software and optimized before fabricating the beta prototype. The machine consists of three units; dispensing, conveying, and steaming. The dispensing unit was developed with 8 streams of volumetric dispensing, such that the idly batter from the batter tank will be dispensed by the press of linear actuators to the idly mould plates, which will be positioned right beneath the dispensing system. The conveying unit advances each idly plate in a similar manner until a batch is completed. Then the dispensed batch will be steamed under a steaming unit and thereafter, dispensing of the next batch takes place. These processes are repeated continuously until user input target is reached. It produces idly with a 57.4% reduction of time consumption, 75% reduction in human involvement and 76% increment of the productivity. The machine can produce different sized idly. The developed machine can produce 512 idly/hour with one operator. The total cost of the machine is around LKR 1,416,000 and it could put into the market with a selling price of LKR 2,000,000. The cost it saves per day was estimated to be around LKR 1,493. For an industry which produces 1000 idly per day, the payback period would be 44 months. Even though the machine was designed for idly making, the design of the dispensing unit and conveying unit can be modified for making other types of food such as string hoppers and pittu, which are cooked by steaming.

**Keywords:** Automatic idly making, dispensing, steaming, idly batter

**E-mail:** jansanth@gmail.com