


## Original Paper

# A Sensor Network to Monitor Process Parameters of Fermentation and Drying in Black Tea Production

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## Abstract

Fermentation and drying process in tea production are two important processes which play a crucial role in producing good quality tea. Tea colour and flavour are formed in the fermentation and enzyme reactions are terminated and moisture contents are reduced from the leaf particles in the drying process. Ambient temperature and relative humidity (RH) are two major factors for the fermentation process. Firing temperature of dryer is also responsible for the final quality of tea. This paper presents an instrument comprising of sensor network to monitor temperature and RH for the fermentation process and firing temperature of the dryer. For dryer temperature monitoring a thermocouple based measuring system is developed. For fermentation an RH to voltage converter and temperature to voltage converter type sensor is used to develop the RH and temperature monitoring sensor node. The sensor nodes for different stages are connected in RS 485 network. Data are logged into the hard drive of a personal computer using the developed data acquisition software. The instrument will be helpful for recording these parameters and so that their influence can be determined and final quality can be improved.

## Keywords

Tea production – Temperature – Relative humidity – RS 485 – Thermocouple