



***Computer Based Data Acquisition and
Control in Agriculture***

The Design of Wireless and Distributed Temperature Monitoring System for “Tungku Gama” Grain Dryer

Tri Kuntoro Priyambodo¹, R. Sumiharto² and Sutrisno³

¹Departement Computer Science and Electronics, Gadjah Mada University, mastri@ugm.ac.id

²Departement Computer Science and Electronics, Gadjah Mada University, r_sumiharto@ugm.ac.id

³Departement Industrial Engineering, Gadjah Mada University, sutrisno@ugm.ac.id

ABSTRACT

In order to overcome Bantul 's farmers which have severely problem when harvesting paddie at rainy session, it has been built a grain dryer. This drying machine utilize “Tungku Gama”, which is a furnace using husk as fuel. A temperature monitoring system is introduced. This equipment built as a distributed sensor network, based on a ATMEGA micro-controller and X-bee communication module. It uses A-component and B-component as a temperature and a humidity sensor respectively. The system has ability to monitor multiple locations simultaneously, where each location consists of four cabinet dryer each having eight shelves. Each location is equipped with a data-logger or data-concentrator. Due to the distributed locations of the grain dryer, a monitoring center is made and is connected with each data-logger by a wireless communication.

Keywords: *Tungku Gama, instrumentation, wireless sensor network, microcontroller, productivity, supply chain*