

# **Microcontroller-Based Charcoal Briquette Oven Machine Design to Increase Charcoal Productivity in Dar Briquette SMEs**

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## **ABSTRACT**

Energy needs have increased along with the rate of population growth and the world economy. Charcoal briquettes made from coconut shells are a form of renewable energy that deserves to be developed in Indonesia. Data from the Ministry of Agriculture of the Republic of Indonesia states that the area of coconut plantations in Indonesia in 2009 reached 3.8 million hectares with a total production of 3.2 million tons. It is estimated that in one ton of coconut, the coconut shell produced reaches 150 kg. Coconut shell charcoal briquettes are one of the alternative energy sources that are in demand by the export market. The purpose of this research is to design a charcoal briquette oven machine, because this oven process is the last process in making charcoal briquettes which will determine the quality of charcoal briquettes. This research was carried out for two years, where in the first year it was focused on the design process to the manufacturing of the oven machine that would be developed. Furthermore, the assembly process is carried out until testing the charcoal briquettes oven. This oven machine is expected to be able to dry charcoal briquettes within 1-2 days. The next process is checking the quality of the charcoal briquettes. In the second year, the research will focus on developing an Android-based smart system. There are several sensors that are implemented into the oven machine. The next process is the integration between sensors and smart systems that are developed into smart phones. So it is hoped that managers will find it easier to monitor and decide on a matter in the oven process. The main and additional outputs expected in this research are simple patents/copyrights and international proceedings/journals. The level of technology readiness (TKT) targeted in this study is level 6. So from the results of this study it can provide a fairly good contribution if it is applied in SMEs and industry

Kata Kunci: *Oven Machine, Charcoal Briquette*