

ABSTRACT

TARIZULU, TRINO J and VIDAMO, STEEVEN SEAN P. Design and Development of a Coffee Bean Color Sorting Machine. Design Project. Bachelor of Science in Computer Engineering. Cavite State University, Indang, Cavite. April 2014. Adviser: Mrs. Florence M. Banasihan.

A study was conducted to design, develop, and fabricate a machine that sorts coffee bean according to color. The designed coffee bean color sorting machine comprised software and hardware. Matrix Laboratory Programming language was used in developing the software of the system. The PIC16F84A microcontroller was programmed to control the mechanical conveyor then, the PIC16F877A microcontroller was programmed to control the main operation of the system which is sorting. The system provided the following components: one piece of two layers 15 characters liquefied crystal display, two pieces of stepper motor for the conveyor, one piece of servo motor for separation, optocoupler for object detection, color sensor for identification of color matrix of the coffee bean and power supply.

The evaluation of the coffee bean color sorting machine showed that the machine performed according to its design function. The results revealed that the microcontroller- based machine for coffee bean color sorter obtained an overall accuracy of 84.78 percent, 59.40 minutes on speed 2 (medium setting) which was equal to 79-84 rpm beating the overall performance of speed 1 (low setting) which was equal to 73-78 rpm and speed 3 (high setting) which was equal to 85-90 rpm but did not surpass the manual sorting having 94 percent accuracy and 35.70 minutes on speed. The machine had a total cost of P 20,033.00.