Development of An Automatic Cutting System for Harvesting Oil Palm Fresh Fruit Bunch (FFB).

Abstract

The purpose of this project was to design, fabricate and test a harvesting mechanism for oil palm fresh fruit bunches (FFB). A carrier machine was designed and fabricated which can move around the tree trunk smoothly while carrying the cutting system. A mechanize motor system also was designed and assembled on the carrier machine for moving the cutting machine forward and backward along the tree trunk radius. For a successful and smooth cutting process, two direct current (DC) motors were used for carrier machine. Cutting machine consists of a mechanism for cutting and a cutting blade. A reciprocating mechanism was used in this project because of the added advantages of this method as compared to others. Design of the blade tooth for doing a fast and clean cut was an important parameter in this project. An HM-TR Transparent Wireless Data Link Module and an ATmega8 microcontroller were used to control the cutting system. This system was tested successfully in both laboratory and field condition.

Keyword: Oil Palm tree climber; Automatic Cutter; Wireless Data Link; ATmega8 microcontroller.