DESIGN AND FABRICATION OF MOTORISED ARECANUT TREE CLIMBER

A PROJECT REPORT

Submitted to

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In partial fulfillment of the requirements for the award of

Bachelor of Engineering

Department of Mechanical Engineering

VIVEKANANDA COLLEGE OF ENGINEERING AND TECHNOLOGY

Nehru Nagar, PUTTUR (DK) – 574 203

MAY 2010

Abstract

The people in rural areas of Karnataka and Kerala mainly depend on agriculture for their livelihood. The main crops grown are Arecanut and coconut.

For harvesting the nuts, and for spraying and applying insecticides on the crown, skilled labourers have to climb manually up the tree. Such a process looks easy, in reality it is a laborious and dangerous task. It requires skill to climb a arecanut tree. Skilled arecanut tree climbers have become scarce and farmers are finding it difficult to harvest the nuts.

There are many equipments/ machines in the market to help the farmers in this regard. But they are not successful as the input for them is muscular power of the labour and it requires a person to physically climb the tree. There is no 100% safe arecanut harvesting device currently in the market. There is a need to invent a machine to address both efficiency and safety. The design of the device has to be simple enough for villagers to operate, yet work efficiently to appeal to the majority.

Here we are designing and fabricating motorized arecanut tree climber. The tree climber has a base on which the drive system is mounted. The power from the motor to the rollers is transmitted by using sprocket and chain drive. To obtain the required speed of the rollers a reduction gear box is used in between the motor and the rollers. The machine is placed around the tree and clamped to it using a swivel opening on one side of the base. Due to the weight of the motor, gear box and some extra mass concentrated on one end of the base the machine locks itself to the tree. Now the motor is switched ON to drive the rollers. When the rollers rotate gripping the tree, the whole setup is lifted along the length of the tree. After reaching the required height the motor is switched OFF. By having suitable auxiliary equipments for spraying pesticides, plucking the nuts on the setup and suitable controlling methods for those equipments the required job can be performed. Once the job is done the motor is made to rotate in the reverse direction to descend down the tree.