Coconut Harvesting Robot

Mohim Munnai, Sanjairamanan R, Shanoj P, Dr. Katherasan Duraisamy

Department of Robotics and Automation

Dhanalakshmi Srinivasan Engineering College (Autonomus), Perambalur

Abstract: *Last few decades have witnessed a rapid development in robotic technology. Different types of intelligent machines which facilitate various tasks in industry environment are becoming popular. This paper focuses on designing a low-cost coconut tree climbing and harvesting robot. The kinematics and the motion of the robot are designed by referring to the motion of coconut harvester. The mechanical frame is designed in fusion 360 software and is implemented using aluminum segments and threaded rods. It has two grippers driven by motors for holding. Locomotion of the robot is achieved using eight motors out of which four motors are used in two hands and two are used for upward and downward motion, and the other two are used to locomote the robotic arm. The other part is a robotic arm for cutting down the coconuts. The robotic arm is attached on top of the climbing part. The operation of the cutting arm is done manually from the ground using a remote. The robot is automated using Arduino-Uno, motor H-bridge drivers, current and level sensors and other supporting circuits. The forward and the reverse motion of the motors are controlled by the Arduino through driver modules. Robot has automatic and manual functions fully controlled by the end-user. This paper has taken into account of the safety, reliability and the ease of use. A locomotion algorithm is developed to provide the robot with an autonomous capability for climbing.*

Keywords: Coconut

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