

AUTONOMOUS COCONUT TREE CLIMBER

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Harvesting coconuts is a physically demanding task, particularly when it involves climbing tall areca nut or coconut trees. Along coastal regions where these trees are abundant, the shortage of skilled climbers who can ascend the trees to harvest coconuts has been a significant challenge for coconut planters. Traditionally, experienced climbers have been hired to manually climb the trees and collect the fruit using their hands and legs, a labour-intensive and often risky process. The aim of this research project is to create an innovative solution for coconut tree climbing and harvesting, tailored to the needs of farmers. Climbing coconut trees presents unique challenges due to their tall, solitary trunks, cylindrical shapes, and lack of supporting branches. To address these challenges, this project introduces a robotic coconut tree climber and harvester system.

The proposed system consists of a ring-shaped frame with a cutter, designed to securely attach to the coconut tree. This frame also houses a robotic arm (RA) that can be maneuvered to the desired position near the coconut bunches. Once the system is in place, the cutter is operated to harvest the coconuts by slicing through the stem that connects the bunches to the tree. This novel approach aims to improve the efficiency and safety of coconut harvesting while reducing reliance on human climbers, thereby addressing both labour shortages and safety concerns in the coconut industry.