

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY
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A Project Report on

“ADAPTIVE TREE CLIMBING ROBOT”

Submitted in partial fulfillment for award of degree in

**BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING**

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ABSTRACT

The proposed project “Adaptive Tree Climbing Robot” is the extension of the earlier project “Tree Climbing Robot” Carried out by our seniors as their final year project. In their project, the robot can climb trees with no branches. The proposed Robot is developed to climb irregular shape trees and also trees with branches. The robot is made intelligent to detect obstacles by using sensors and to avoid the obstacles by changing its position and location using servomotors and dc motors.

Climbing robot is a challenging research topic that has obtained much researchers attention in the recent decade. In the literature, most of the climbing robots are working on climbing urban settings but seldom of robots are designed for climbing natural environment such as trees. The nature of trees and manmade structures is very different. For example, trees have an irregular shape and their surface is not smooth. Some types of trees have soft bark that peels off easily. Hence, most of the methods applied in the development of wall climbing robots are not applicable for tree climbing robots.

Since climbing up trees to perform forestry works is dangerous for human being, a robot with tree climbing ability should be developed to assist or replace human’s works. Preventing trees from failing is important to protect human life and property in urban areas. Most trees in urban areas require regular maintenance. To reach the upper parts of a tree to perform such maintenance, workers need to climb the tree. However, tree climbing is dangerous, and thus the development of a tree-climbing robot could assist or replace manual work.