Abstract: this report explains about the robot programming for agricultural robots and its implementation in detecting the number grape bunches in the vineyard, it also explains about the concepts used in creating the programs, by using the methods such as topological navigation to create wave points to give the robot the co-ordinates to the desired position, using opencv with ROS programming to detect the grape bunches by moving the robot autonomously avoiding obstacles from one wave point to other. The counting of fruits done by detecting individual co -ordinates of every fruit and saving so that it should not repeat counting.

1. Introduction:

The main characteristics required for the robot is to be adaptable; they can be adapted to different types of tasks without any crucial changes. These adaptability is derived from the generalization of the structure and control, but it can be used if the robot can be programmed easily. In some cases lack of proper programming may lead to perform particular tasks impossible. Due to these reasons the robot programming plays a very important role in robot development [1].

* 1. history:

In the beginning the robots were moved manually to a required position and recording the co-ordinates of the position based on the internal joint co-ordinates, in addition to this moving the robot parts and performing particular tasks at some points like tighten the screws at particular positions, these requires robot programming, these can be done by moving the robot to the specific co-ordinates and giving them the activation signal to perform the task at required position. This method is call teaching by showing [2].The latest advance towards robotic programming provides the ability of robot- level languages without any need programming skills.

1. Mapping:
   1. SLAM : One of the most researched areas of robotics is simultaneous localization and mapping (SLAM). Two different approaches exist to the problem of SLAM: topological and metric [3].

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