**System Requirements Review**

Group 2: Xianle Zeng; Yanlin Chen; Haojie Chen

Nowadays, the task of durian picking is predominantly carried out by humans. This process is inherently perilous and demands significant experience in picking. Durian trees tower to great heights, necessitating climbers to ascend them, sever the stems of the fruits, and carefully lower them to the ground. Simultaneously, another individual stands below, ready to catch the descending durians to prevent damage upon impact with the ground. However, due to the weight and spiky exterior of the durians, there exists a considerable risk of injury to the catcher, as well as to those scaling the trees, who may also face the peril of falling.

Additionally, with rising labor costs, orchardists seek alternatives to manual labor, prompting the exploration of machinery to streamline durian harvesting and minimize expenses.Hence, our objective is to develop a durian picker machine capable of ascending to the heights of durian trees and completing the picking process autonomously.

This durian picker machine must fulfill **three crucial functions** to address the aforementioned challenges. Firstly, it should incorporate a mobile robot with a rotatable base, facilitating durian picking in three-dimensional space. Secondly, the machine should be equipped with a hydraulic lifting mechanism featuring a blade at its end, delivering sufficient power and reach for efficient durian retrieval. Lastly, a collection box positioned beneath the lifting mechanism is essential for the gathering of harvested durians, ensuring seamless operation and minimal disruption to the harvesting process.

图片包含 人, 户外, 草, 男人

描述已自动生成 人站在草地上

描述已自动生成

Figure 1 Durian picking process (manually)

Hight: 20-40m

Mobile

Weight to carry: 2.5 kg.