

## عنوان مقاله:

Economic comparison of trimmer robot with manual hedge pruning method

محل انتشار:

یانزدهمین کنگره ملی و اولین کنگره بین المللی مهندسی مکانیک بیوسیستم و مکانیزاسیون کشاورزی (سال: 1402)

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### خلاصه مقاله:

A hedge or hedgerow is one of the most beautiful features in parks. It is made of evergreen shrubs such as buxus and privet, which are usually planted in dense rows. The trimming of the hedge is a periodic, time-consuming, and unsafe operation that is usually performed manually using gasoline-powered hedge trimmer in traditional method. To eliminate the difficulties and danger of working with current trimmer machine, a trimmer robot was fabricated. This paper focuses on the economic feasibility of applying trimmer robot, compared to conventional trimmer system. The comparison was based on a systems analysis and an individual economic feasibility study for each of the two kinds of applications. In study case, the costs and potential benefits of the potential commercial use of trimmer robot with gasoline powered hedge trimmer was compared. The model frame, was included changes in initial investments, labor costs, change in speed, daily working hours, energy consumption and surveillance costs for the two mentioned scenarios. An initial outcome from this study indicates that robotic system is more flexible than conventional system and may reduce labor costs and restrictions on the number of daily working hours significantly. The results showed that, the shift to trimmer robot would decrease the implement investments to about 16% and decrease the sum of .annual labor and machinery costs to approximately 9.%

**کلمات کلیدی:** Trimmer Robot, Agricultural Robotic, Economic, Feasibility Study

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