

MOTIVATION / INTRODUCTION

- Modern agriculture faces challenges of weed management, requiring time-consuming manual labor or chemical usage.
- AI-driven solutions offer a promising alternative, enhancing efficiency and sustainability while reducing labor and chemical dependency.
- The motivation behind this project is to develop an autonomous agriculture robot capable of detecting and removing weeds using image processing technique

OBJECTIVES

- To develop a prediction model that accurately identifies individuals who are at high risk of developing diabetes based on their personal and clinical characteristics.
- It is a state-of-the-art classification model in terms of its impact on diabetes detection to study different methods of feature extraction.
- To compare the results of different papers of prediction of diabetes using supervised learning
- To improve the efficiency of existing prediction of diabetes techniques using a novel method

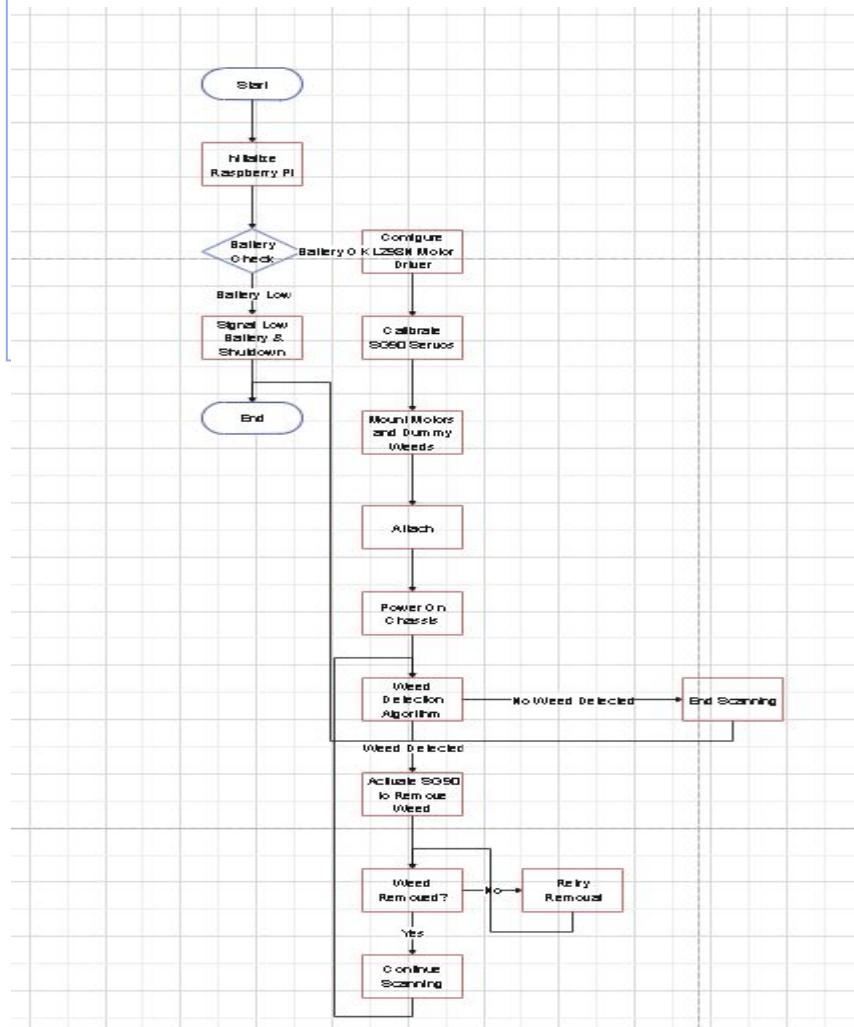
SCOPE OF THE PROJECT

- The project focuses on weed detection and removal using image processing, without relying on traditional sensors.
- It aims to provide a cost-effective and eco-friendly solution for weed management in agriculture.
- The scope encompasses the development of both hardware and software components for the autonomous operation of the agriculture robot.

METHODOLOGY

- Image Acquisition: Capture images of the agricultural field using a smartphone camera.
- Image Processing: Employ computer vision algorithms to analyze the images and identify weeds.
- Decision Making: Process the detected weed information and trigger actions for removal using robotic mechanisms.
- Hardware Integration: Utilize Raspberry Pi and other components to control the robot's movements and operations.

ARCHITECTURE



RESULTS

Metric	Value
weed Detection %	92.5
weed removal%	87.3
power watt	12.8 watts

CONCLUSION

- The project successfully demonstrates the feasibility of using AI-driven solutions for weed management in agriculture.
- The developed agriculture robot showcases efficient weed detection and removal capabilities, contributing to increased productivity and sustainability.
- Further enhancements and field trials are recommended to validate the practical applicability and scalability of the proposed solution.

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2.Sensor Fusion Techniques for Weed Detection in Crop Fields: A Critical Analysis