**AgroWeeder: Self power weeder based on Raspberry Pi.**

**Identification and Justification of Problem:**

Replacing human labour with automation is growing trend across the entire world.

According to survey, the world population is increasing tremendously. With increase in population there is need of increase in food production. Agriculture sector becomes inefficient due to traditional methods of farming.

To improve the quality and quantity of agriculture products and to minimize the human efforts, we need to make use of intelligent and automatic machinery for agricultural activities.

So as modern citizens of country, we have deigned AgroWeeder: Self power weeder based on Raspberry Pi for farmers.

**Village Study:**

In our country farmers still use traditional methods of farming in an era where across the globe all other countries are using modern technology and equipment’s. Due to lack of modern agriculture techniques and limited access to technology, farmers are facing huge loss in agriculture which results in number of farmer’s suicides year by year. Also, due to use of traditional methods and equipment’s in farming there is less crop production and cost of labour is high.

**Description of Problem:**

As the AgroWeeder: Self power weeder working is based on Raspberry Pi; it is termed as Self power weeder. This design definitely becomes boom in agriculture sector. This will help in reducing the cost of labour as well as minimizes the human efforts.

**Description of Innovative Solution:**

We are implementing this prototype using Raspberry-pi as a processing chip. Central Controller that is raspberry-pi is mounted on the power weeder. The pi camera is placed at the top of the power weeder. The ultrasonic sensors would be placed on the front side of the power weeder. The motor-driver ICs are used for the operation of motors and the motion of the power weeder. To detect the obstacle ultrasonic sensors are used at bumper of the power weeder and take actions accordingly. Whenever there is any obstacle in front of the power weeder and lies within the pre-determined distance from the weeder, the raspberry-pi orders the motor driver ICs to stop supplying power to the wheels and hence stops the motion of the car depending upon the proximity of the obstacle.

Thus, our system will minimize human efforts by automation in agriculture equipment’s.

**Description of Technology:**

For implementing this project, we need to install the python 3 and the dependencies in our systems which will help the code to execute successfully

Following are the dependencies to be installed they are

* + - Tensor flow
    - NumPy
    - Opencv-python

## Hardware Requirements: -

* Raspberry pi 3b+
* Pi camera :- 5mp
* Arduino uno R3
* Motor
* Ultra sonic sensor
* Weed Remover
* Power bank
* 24V battery
* Power Bank
* 2\* Motor driver

## Software Requirements: -

* + - Operating System: - Raspbian
    - Editor: -Python3 IDE and Arduino IDE

**Target Beneficiary group:**

This system is beneficial for all the farmers for weeding purpose. Instead of working with machine by physically presenting, we can operate the machine by seating at one place. Mobility problems can be solved using this system.

**Expected Outcomes/Outputs:**

Low Cost power weeder contains various facilities like sign detection, weed removing from gardens and lawns**.** It can also be used for digging the soil.

**Product Model:**

This includes sign detection and weed removal.

Revenue per unit = Rs. 19,500

No. of units produced per day= 10

Total Revenue per month=Rs.1,95,000