WSN BASED ADVANCED AGRICULTURAL VEHICLE
OPERATED USING SMART PHONE – AGRIBOT

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INTRODUCTION:
Agricultural robot or AGRIBOT is a robot deployed of agricultural purposes. This
multipurpose system gives an advanced method to seed sowing, ploughing, watering the crops
and harvesting with minimum man power and labour making it an efficient vehicle. The whole
process calculation, processing, monitoring are designed with motors and interfaced with
Microcontroller.

OBJECTIVE:
Agricultural robot or Agribot is a robot deployed for agricultural purposes. Our robotic
vehicle is an agricultural machine of a considerable power and great soil clearing capacity. This
multipurpose system gives an advanced method to leveling, seed sowing, ploughing, watering
the crops and harvesting with minimum man power and labor making it an efficient vehicle. The
machine will cultivate the farm by considering particular rows and specific columns at fixed
distance depending on crop. Moreover the vehicle can be controlled through Bluetooth medium
using an Android smart phone. The whole process calculation, processing, monitoring are
designed with motors and sensors interfaced with microcontroller.

METHODOLOGY:
In this project we have designed a multipurpose vehicle that will be able to level the land,
plough the land, Sow the seeds, water the crops, and carry out harvesting. We are using an
android smart phone application to control the vehicle to respond to the control signal. This type
of vehicle should be useful for the farmers as a low investment option, also for the ease of use
and friendly user interface it provides. Instead of buying 2 or more machines to carry out the
various functionalities, the farmer can get his work done by using our single efficient
multipurpose Agribot.

Figure 1 shows the Block diagram of the entire System. The Agribot is deployed on a
metal sheet developed with inbuilt roller and cultivator. The front end of the metal sheet is given
the harvesting feature, while both Water pump used to water the crops and seed sowing will be
added at the cultivator end. We use two motors to control the forward, backward, left and right
movement. One motor each is used to control harvesting and seed sowing. The working begins
when the Farmer opens the application and can press the options provided on the display screen.
This android application is developed using Java. The Bluetooth on the android phone will send the RF signals serially, on the other hand the Bluetooth present on the robot receives signals and the Microcontroller will take actions according to the instructions given by the Farmer. We use embedded c and keil vision compiler. The Interfacing is done using Microcontroller 8051.

**CONCLUSION:**
This project introduces wireless technology in the field of agriculture. It reduces manual labor and can work in any sort of climatic condition as well as can work nonstop unlike humans. The time required to carry out the five functionalities reduces considerably in comparison with carrying out the same activities manually.

![Fig1: Block diagram of the system](image1)

![Fig2: Agribot](image2)
**FUTURE WORK:**

As an extension to this initial prototype many sensors can be added to detect obstacles and make the robot smarter. A camera can be installed on the Agribot and the application can be modified in order to display the field on the android application as the robot moves. New technologies like IOT can be used to have a large connectivity range. Sensors to detect the depth of the land to appropriately sow seeds can be added.