

## Arm Based Farming Aid For Paddy Crop

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### Abstract—

An ARM based support system for farmers is discussed in this paper. The system uses soil moisture sensor, water level sensor along with ARM controller. The system automatically sends information regarding moisture content in soil, reminds the farmer regarding pesticide spray and arranges for spraying of pesticides in required quantity at proper time as per the programming. The scheme is developed for paddy crop.

Keywords: GSM, Soil moisture, Sensor, Cortex-M3 (LPC 1768), Water level sensor, Pesticide dosage system.

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### I. INTRODUCTION

India is basically an agriculture based country. Indian agriculture is dependent on the monsoons Paddy is one of the main crops of India and it requires large amount of water. The time duration of paddy crop is 120 days.

If farmers use correct dosage of manures or pesticides at correct intervals the crop yield will be high.

In this paper a scheme is proposed that continuously monitors soil moisture and whenever the value is below threshold water will be pumped automatically. The system monitors level of water in tank and send information to farmer when the levels reaches a preset low value. Further as per a pre set schedule One day before the scheduled date a reminder will be sent to farmer to keep ready required stock. On the scheduled date correct proportion of pesticides will be sprayed.

### II PROPOSED SCHEME

The paddy crop is of 120 days duration. The recommended usage of pesticides and manures is given below.

On 30<sup>th</sup> day after seed planting, mixture of 100 ml of zinc sulphate and monocrotophas with 1000 ml of water is to be sprayed. On 50<sup>th</sup> day poly carbonates and insecticide in the ratio of 1:8 is to be sprinkled. On 70<sup>th</sup> day fungicides and insecticide in ratio of 1:6 are to be sprayed. On 90<sup>th</sup> day poly carbonates and insecticide mixture in ratio of 1:4 is to be sprinkled on plants.

The proposed scheme is shown in Fig 1 and developed kit in figure2.

BLOCK DIAGRAM

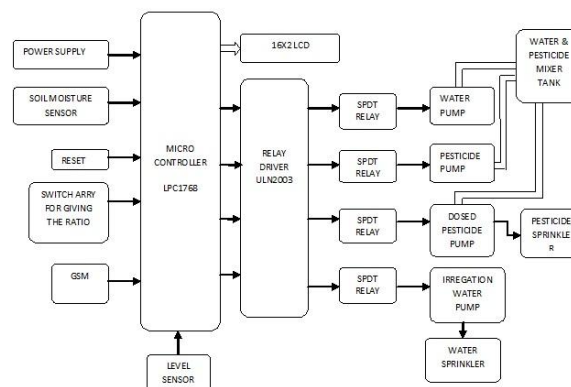


Fig. 1 Block diagram

Initially the farmer has to register his mobile number. The field should be wet and this is monitored by moisture sensor. Whenever the moisture content decreases the controller activates a relay to switch on water pump motor and water is filled in the field.

The farmer is made aware of field status know like field wet or dry, water level in tank, motor switched on or off and is reminded about pesticide using GSM technology.

One day before the scheduled date programmed for pesticides an alert signal will be sent to the registered mobile of the farmer. This helps the farmer to arrange for required pesticide in sufficient quantity.

On the specific day the water and pesticide will be mixed in tank in the set ratio and mixture

will be sprinkled on the crop after confirmation from farmer.

The process is repeated till the yield comes.

### III RESULTS:

The developed kit is tested for proper working and few results are shown in figures 3-6.



Fig 2 Farming aid kit



Fig 3 : Mobile Registration

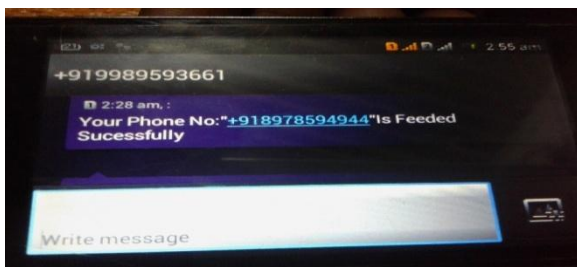


Fig 4: Mobile Registration confirmation

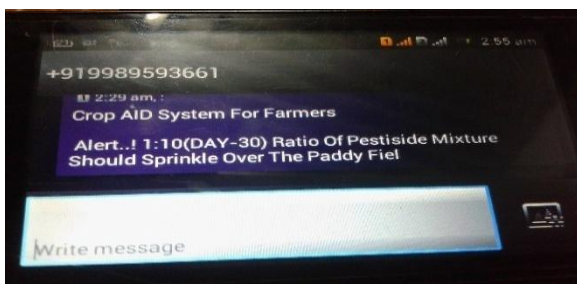


Fig 5 Alert message to farmer



Fig 6: sprinkling Pesticide Mixture

### IV CONCLUSION

This system provides help to farming. The system supplies water only where the soil gets dry and thus reduces water wastage. By using the pesticide dosing system the yield of the crop increases.

The scheme can also be implemented for any other crop with proper program of pesticide spray and other requirements fed to ARM processor.

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