

OAMS- An Online Agriculture Management System

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Abstract: The paper is aimed at solving some of the major problems related to farmers. It provides a way to the farmer to remotely monitor his field using sensors and even manage the operation of the machinery located at the farm using a device located at the farm. The required sensors and the machinery are connected to the devices. The web interface has been designed completely user friendly, to facilitate the access even to an illiterate farmer. The farming issues related to the type of fertilizers to be used, the manure to be used, the minimum support price to the crop, etc. have been addressed. The information on the web page can be updated by an administrator on timely basis.

I. INTRODUCTION

India is fourth largest agriculture sector in the world. Agriculture sector provides employment to over two third population of the country. Not only this, agriculture is major source of income for more than 75% Indians [1]. Although agriculture is of great significance to the national economy yet the condition of Indian farmers and other individuals depended on the sector is unfortunate. Most Indian farmers follow intensive agriculture practices where a small piece of land is heavily cultivated with the help of cheap labor and chemical fertilizers and pesticides. This type of agriculture is considered to be harmful for soil which does not get any time to regain its fertility and is continuously polluted due to the use of harmful chemicals.

Most Indian farmers are unaware of modern agriculture practices and are still using traditional methods of agriculture that lead to lower yield. In India, agriculture is mainly practiced by illiterate rural population. Recently government has introduced several reforms in order to improve skills of Indian farmers and to modernize the agriculture sector. The Department of Agriculture & Cooperation (DAC) [2] has introduced Kisan call centers. Any Indian farmer can dial 1551 and discuss any agriculture related problem with experts.

Government is also promoting use of internet in spreading agricultural awareness among farmers. BSNL provides very cheap broadband service in rural areas of the country to promote easy access to information even in remote areas.

Irrigation is also a major problem for agriculture sector in India. Nearly 65% farmers are dependent on monsoon for irrigation [3]. Uncertainty or delay of monsoon rains cause damage to agriculture in India. Most Indian farmers are still isolated from modern weather forecast services.

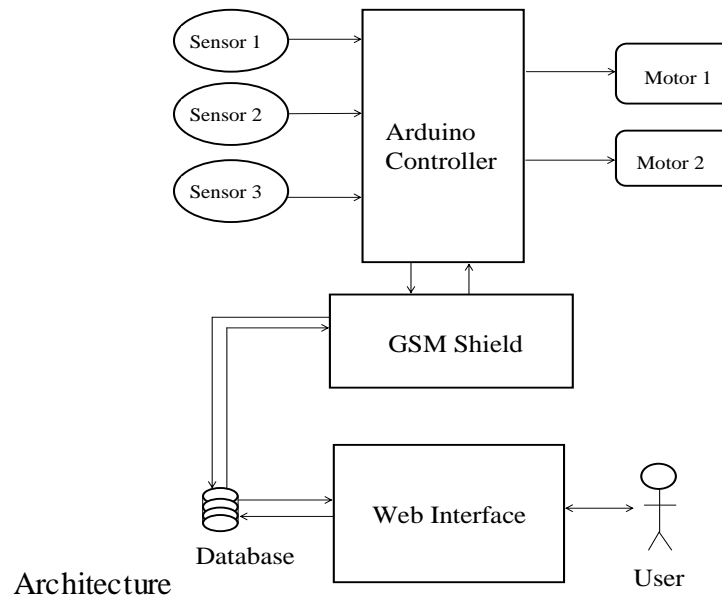
The remoteness of the farm often inhibits the farmer to reach the farm on odd times. The farmer may need to go to the farm even for small reasons. He may have to drive all the way miles to just see the weather and switch on the motors.

Another problem faced by Indian farmers is that they are often unable to get appropriate price for their production. Most farmers are unaware of latest minimum support price for different crops announced by government. Indian government updates this information on their site.

Thus Problems of agriculture can be summarized as:

1. Lack of modernization in irrigation sector.
2. Unskilled and illiterate farmers.
3. Poverty among farmers due to their ignorance about minimum support price of their crops.

The purpose of our research is to solve these problems through proper application of Information technology.



Implementation



Lightweight

OAMs utilizes bootstrap framework by twitter for its frontend user interface. Bootstrap enables it to deliver excellent user experience with minimum loading time.

[View details >](#)



Object Oriented

Object oriented methodology is heart of OAMs which is blended with procedural programming for simplicity. Due to use of OOPs throughout the design process system is very easy to maintain. Adding new features is easy and debugging is fast.

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Monitor Field

temperature DEFAULT

humidity 25

water 24

water 23

motor 0

motor DEFAULT

[On Motor](#)

[Off Motor](#)

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Testing



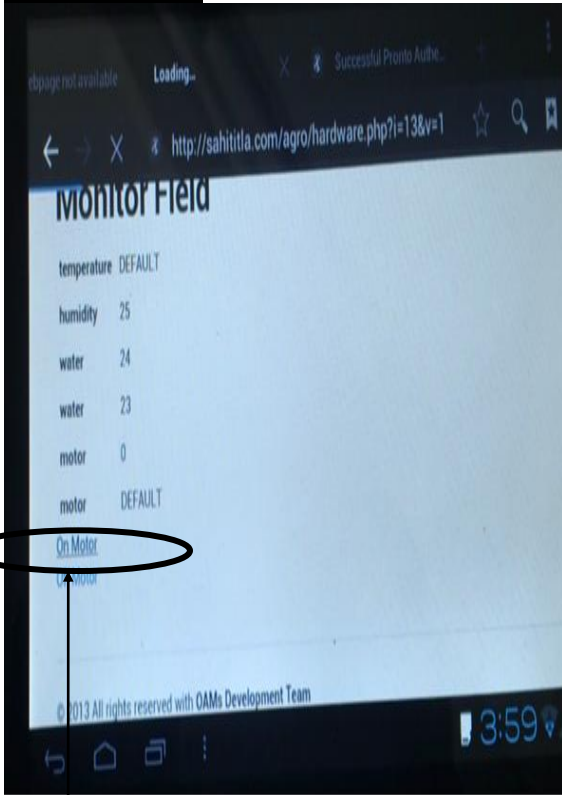
Receiving On command on serial window

```
COM14
AT+HTTTPREAD=0,2
+HTTTPREAD:1
OK
got:got:0helloAT+HTTTPARA="CID",1
OK
AT+HTTTPARA="URL","http://www.sahititla.com/agro/hard
OK
+HTTTPACTION:0,200,1
AT+HTTTPREAD=0,2
+HTTTPREAD:1
OK
got:got:1hello
```

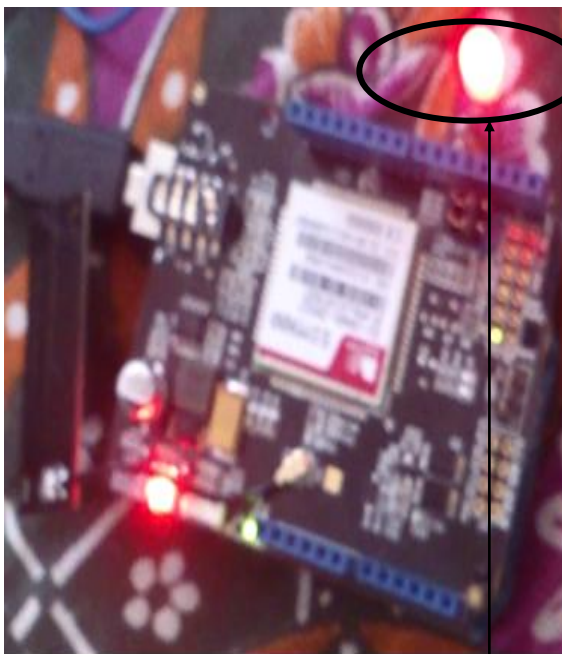
Autoscroll No line ending 19200 baud

On received

On instruction from Tablet from the farmers interface



On command



On state

II. OUTPUT AND DISCUSSION

The temperature, humidity and water level values are being read by the device located at a remote location and being sent to the database server. The farmer can view his field conditions located at a convenient location and operate the farm equipment.

The minimum support price, farming techniques guidelines and farming tips are also being displayed to the farmer on his interface when he logs into his account.

The administrator can update the crop related information on time to time basis. He can also update the minimum support price for the crop. He can also add and delete farmer's information into the system.

III. FUTURE ENHANCEMENT

The current system developed can be further enhanced to enable the farmer to connect to his device with SMS.

The system's design can be optimized based on much precise requirement of the farmer and can developed on a large scale, which even reduce the cost of the device.

The advertisements related to agricultural equipment can also be published on the interface of the farmer.

The system can be extended to provide a common platform for different kinds of farmers to interact and exchange information regarding farming.

IV. CONCLUSION

The Online Agriculture Management System (OAMS) for remote monitoring and managing of farm has been developed which address 3 major problems related to agriculture. The system equips the farmer with knowledge related to farming and sales of the yield. The government can also use the system to keep the farmers up to date with the current farming techniques.

REFERENCES

[1]http://www.momagri.org/UK/focus-on-issues/Agriculture-in-India-Both-Weak-and-Strong_249.html

[2]<http://www.preservearticles.com/2012051432076/impact-of-monsoon-climate-of-india-on-agriculture.html>

[3] <http://agricoop.nic.in/>