



Agriculture parameters monitor and control through arduino yun

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ABSTRACT-In real time, agricultures become as a part time work due to economics and environment effects. Arduino yun provides easy control and maintains the agricultures work as a part time. Farmer can control and maintain their farmland through arduino yun. It provides to monitor sensor values into related user IP address and control the relay with respect to user. Arduino can collect farmland video for preview monitoring to farmer. It provides to reduce the time and cost for farmland. Like as a soil moisture, temperatures sensor, light intensity, air temperatures and tank water level. arduino provides also control motor and light through relay connection. This action provides to avoid the number of labour for agricultures work and make the agriculture work as reliable. This embedded system provides higher reliable WiFi network. WiFi router increased distances of the

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network. There will be IP camera which is digital type that provides wireless

transmission of video signal. Broad chip is used

Keywords; arduino yun, IP camera, relays, sensors, arduino2560, linux processer and embedded corlexm.

I.INTRODUCTION

Arduino yun are an embedded system technologies. This arduino yun came back with WiFi control in linux kernel OS. Arduino yun provides to allocate the user IP address in cloud network. Arduino yun interact with farmer through this IP address. The arduino yun has implemented with linux kernel OS which avoided external linux processors. Farmer can view their farmland parameters and farmland video through mobile phones. It allocates easily control and manages their work activates. Arduino read the

II.SYSTEM DESCRIPTION

The following block diagram shows the circuit operation of arduino yun.. The arduino 2560, CPX 2120 UART interface and AP 9600 linux processor

are already implemented within arduino yun. The arduino yun 2560 has an input of soil sensor, water level detector, humidity sensor and temperature sensor.

The linux

processerconnectedwith arduino 2560 through CPX 2120 in UART type communication manner. The video camera connected with arduino yun through

arduino 2560. AP 9600 linux processor create IP cloud address for communication with farmer in the cloud network

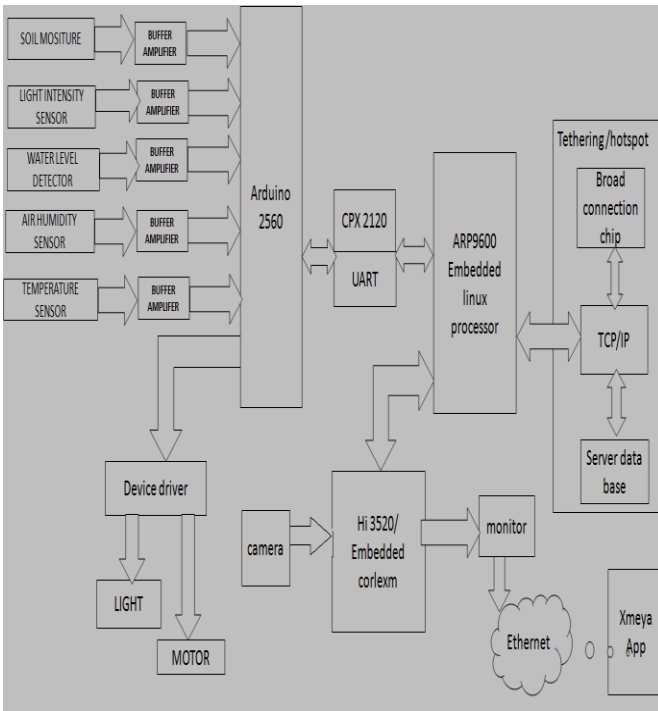


Figure.1. Block diagram

A. Soil Sensor

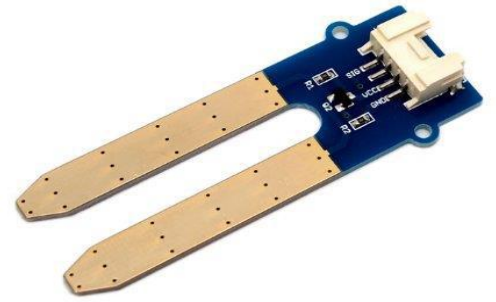


Figure 2.1:Soil Sensor

It is used to detect the moisture content of the soil through conductivity between two electrodes.

B. Light Intensity Sensor



Figure 2.2: Light Intensity Sensor

Light intensity sensor read the sun light in environment by photosensitive principles.

C. Water Level Detector

Water level detector is an set arrangement in tank by using conductivity of wire and resister to indicates the water level in tank.

D. Humidity Sensor



Figure 2.3: Humidity Sensor(DHT11)

It is an air humidity sensor which provides humidity of the air by using conductivity between electrodes.

E.Temperature Sensor



Figure 2.4:Temperature Sensor(LM35)

The temperature sensor is used to detect temperatures of environment

F. ARDUNIO YUN

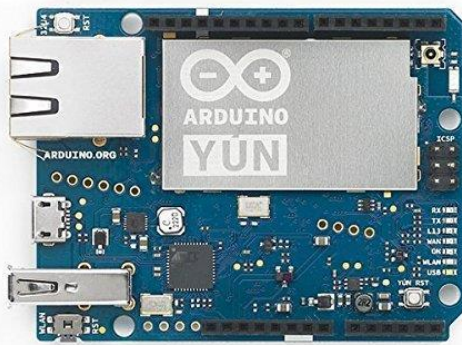


Figure 2.5: ARDUINO YUN

Arduinio yun is an embedded system technologies which provides WiFi control

relay components with respect to sensor values in an IP address. It provides monitoring the farmland video in the IP address. This technologies control the sensor values with respect to given instruction in type of coding.

G.IP CAMERA

Internet Protocol camera which is type of digital camera. It can send and receives video in a wireless manner via computer and the internet.

H.RELAY SWITCH

Relay is used to operate the motor and light through arduino 2560 under voltage 12V. The relay can be operated with respect to instruction given YUN

III.SYSTEM OPERATION

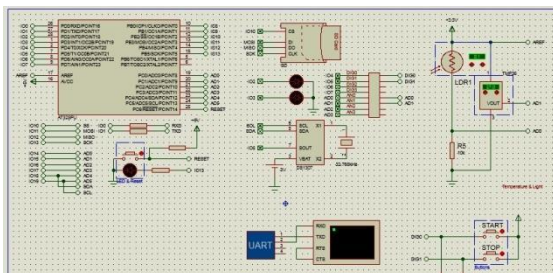
The sensor values like a soil moistures, light intensity, water level, air humidity and environmental temperatures are get by arduino 2560. The arduinio AP 9600 processor allocates the IP address in cloud network with TCP protocol, service data base protocol and internet protocol. Internet protocol allocates IP address for created cloud address. Transfer control protocol allocates

authentication of IP address with passwords. Service data base allocates data transfer in the network connection. Arduino 2560 provides analog to digital conversion the sensor values and then given into arduino AP 9600. IP Camera is used to monitor farmland videos. This camera is connected with corlexm for playback of recorded videos. Xmaya apps in embedded corlexm to provides the frame the each videos from camera. Corlexm embedded devices act as interfaces between camera and Arduino AP 9600. The linux AP 9600 processors upload the sensor values and farmland videos into allocated IP address with authentication.

The farmer access this IP address with their authentication to view the sensor values and to previews the farmland videos and also farmer can control the motor and light through the relay switch. Broad communication chip provides to enables the WiFi network. Data transfer in this WiFi network is speed and there is no service provider cost. WiFi router increased distances of WiFi connection.

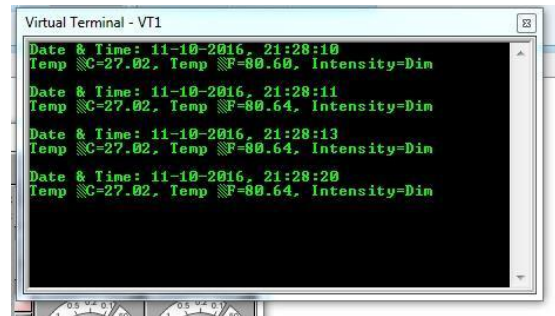
IV. SIMULATION RESULT

The proteus version 8.5 help to obtained simulation result of agriculture’s parameters monitoring and control. The following figures shows simulation circuit of agriculture parameters monitor and control in Arduinio yun.



Figures 3: Circuit Diagram Verification In Proteus Software

In this simulation circuit, variation in sensor values are monitored in user system with date and time. The following figures shows this simulation output.



Figures 4: The Simulation Output Verification In Proteus Software.

V.CONCLUSION

This paper presented the agricultures

parameters monitor and control through arduino yun. Arduino yun reduced working time, cost of labour and to provides easy of the maintenances. This technology also satisfies effects from environment and economics. Arduino yun provides high speed and wide range of WiFi for monitor and control the agricultures parameters.

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