Automated Irrigation System Using MSP430

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Introduction

• Agriculture plays an important role in shaping the economy of a country

• Farmers are heavily dependent on rain and bore wells for irrigation of the fields

• In some countries even now manual intervention is required in irrigating the fields
Introduction

- There is a need for an irrigation system to provide water to the farms without manual intervention.
- Microcontroller-based automatic irrigation system will address this problem.
Motivation

- Aim of the project is to minimize the manual intervention in irrigating the fields
- To fields where there is power scarcity
- Saves time and gives much needed rest to farmers
Project Scope

- Power Sensor Circuit
- Soil Moisture Sensor
- Key Pad Switches
- MSP430G2231
- Seven Segment Display
- Water Pump
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Hardware Components
Soil Moisture Sensor

- VG 400 Soil moisture sensor probe from Vegatronix
- ADC10 channel A1 is interfaced through port1.1
ADC Software Interface Algorithm

Start

ADC ON

FALSE

ENC

TRUE

Sampling And Conversion Start Low Power Mode0

FALSE

Interrupt (End of Conversion)

TRUE

Read Value From ADC10MEM ADC10 OFF

FALSE

ADC10MEM == VALUE

TRUE

WAIT STATE

FALSE

P1.0 == 1

TRUE

Trigger Water Pump Control

12 Hr Delay/Wait for Sensor O/P to Drop to 1 V
• It will receive its output from the decoder.
• The hardware interface of the component used.
• Interfacing of the component with software.
• CD4511 BCD – Seven Segment Decoder is used to mitigate the limited port problem.

• It will be connected to the MSP in order to give the input to the seven segment display (MAN 72).
Key Pad

Key Pad (3 Switches)

• Switch A is to increase the time (up)

• Switch B is to decrease the time (down)

• Switch C is to confirm selection
Applications

- Saves Time
  System will remember the time to water
- Saves Water
- Much needed rest to the farmers
• This project demonstrates the application of microcontroller in agriculture
References

- Web
  - http://www.ti.com/product/msp430g2231
- MSP430 Microcontroller Basics by John Davies
THANK YOU