Project Plan

Irrigation Distribution Uniformity Analysis

Team 7. Toro
CSE 498, Collaborative Design

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Project Overview

• Allow graphical analysis of sprinkler test data
• Internal replacement for Space PRO
• Perform multiple calculations on data
• Display graphical representation of data
Functional Specifications

• Read in both Access Database files and .DTM and .PRF files

• Program will support both manual and automatic modes

• Automatic mode: Single sprinkler type, multiple preset formations

• Manual mode: Multiple sprinkler types, multiple formations, ability to manipulate formations, manual entry of data
Functional Specifications, cont.

- Ability to print and output data to Excel documents
- Graphically model data and calculations in densograms
- Mouse-over tooltips with x and y coordinates
- Ability to zoom into graphs
- Display of calculation results
Design Specifications

- GUI designed as Windows Form
- Graphics will display in pop-up windows
- When manual mode is enabled, sprinkler nozzles will be interactive eg. drag-and-drop
These values should change when you select a specific nozzle on the grid.

Assume that these files represent the three different nozzles on the grid:
- Quarter circle
- Half circle
- Full circle

When printing all this, the data should be sent to the printer.
Single Sprinkler Automatic Layout Simulation
- Rectangular, Square

Sprinkler Name: TORO PRECISION SPRAY
Base Pressure (PSI): 30.0

Sprinkler Model: O-T
Riser Height (IN): 4.0

Nozzle Size: 10H #1
Set Screw Setting:

Flow Rate (GPM): 0.60
Degree of Arc: 180

Date/Time of Test: 07/10/09
Mins./Revolution: 0.00

Testing Facility: C.I.T.
Record Number:

Comment: Sprinkler provided by: TORO
Catchment Spacing: 0.5'

Distr. Uniformity: 81%
Min (In/Hr): 0.426

CU (Christiansen): 90%
Mean (In/Hr): 0.888
N/A (Theor.)

Sched Coeff (5%): 1.4
Max (In/Hr): 1.157

Spacing:
Rectangular
10.0' x 10.0'

From SpacePro
Technical Specifications

- Developed using Visual C# and ASP.NET
- Developed in Visual Studio 2008
- 3 project elements: Parser, GUI, Graphing Capabilities
System Components

• Hardware Platforms
  – PC

• Software Platforms / Technologies
  – Windows XP/Vista/7
  – Informal Support for Mac OS X
Testing

- Testing on the parser will be done utilizing an automatic script utilizing various malformed data files. Additional files will be created based on bugs found.
- GUI testing will be done manually.
- Manual mode will be stress tested to determine maximum amount of possible sprinklers.