

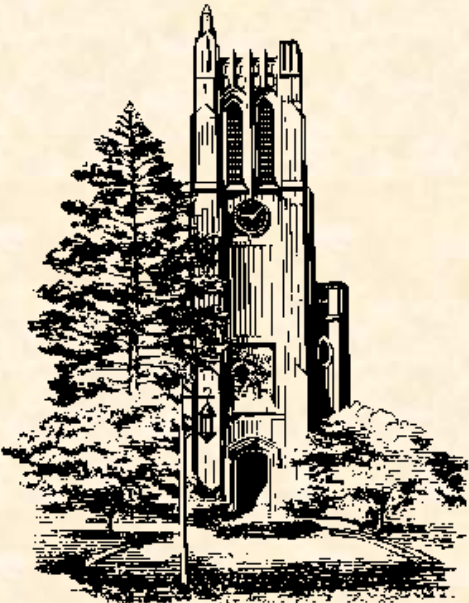
Alpha Demonstration Irrigation Distribution Uniformity Analysis

Team 7. Toro
CSE 498, Collaborative Design

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Project Overview

- IDUA is a tool to assist engineers with finding the most efficient arrangement of sprinklers to ensure uniform irrigation
- Retrieves data stored in a MS Access database and performs transformations and calculations
- Represents findings in a visual graph known as densogram

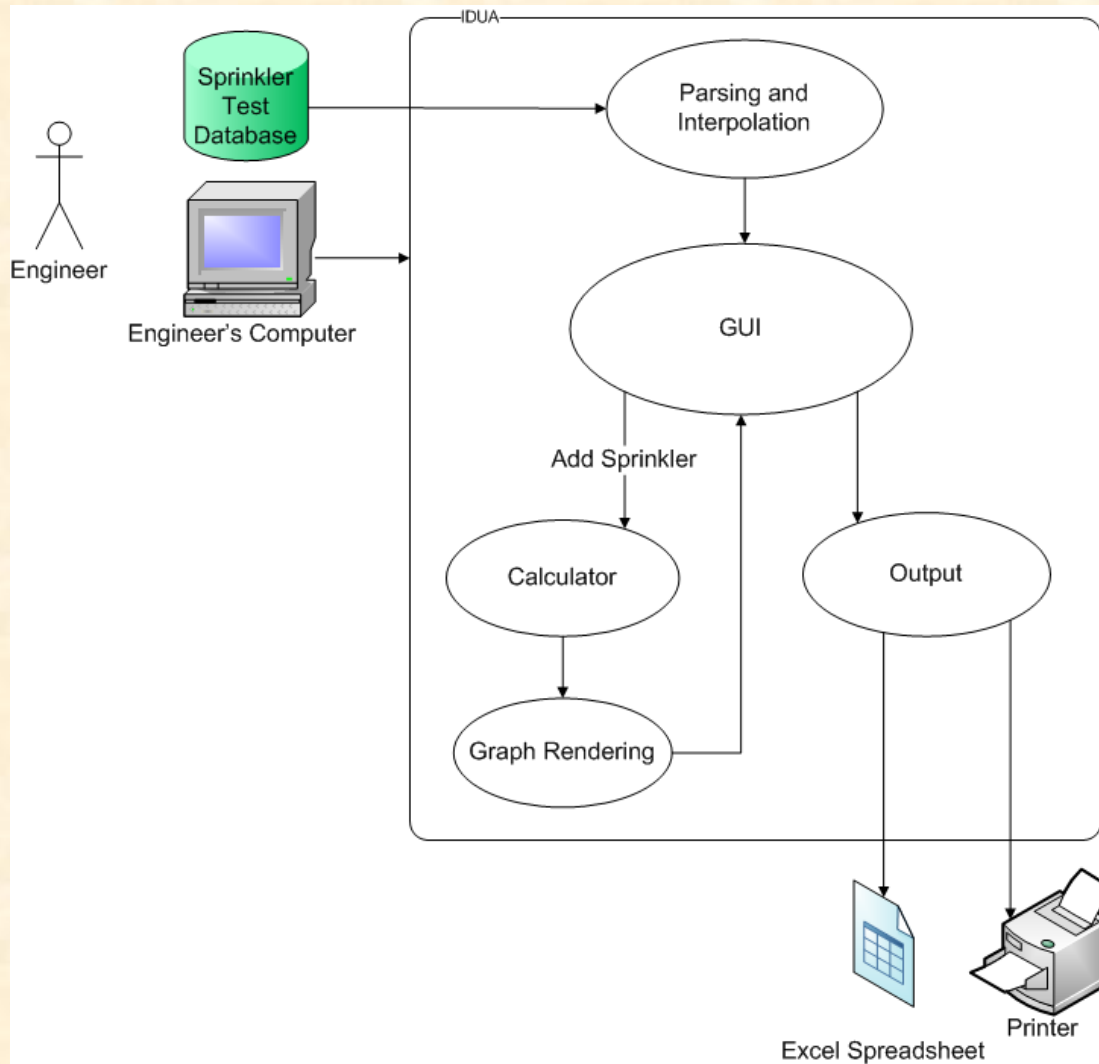


Project Overview, cont.

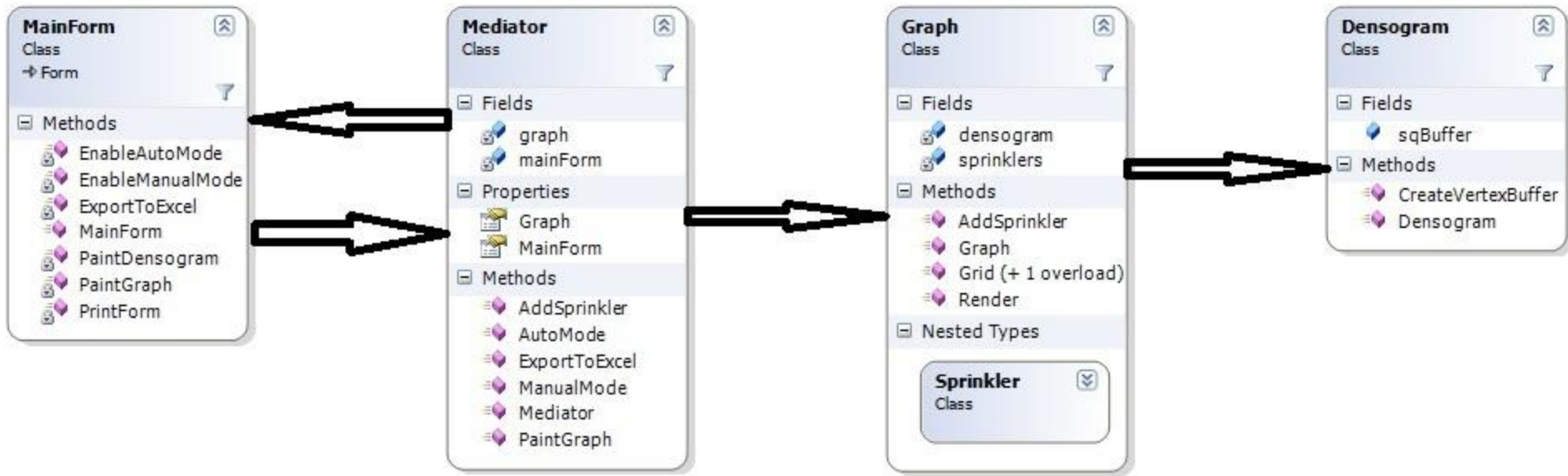
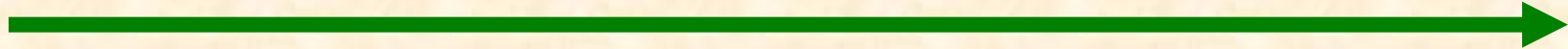
- Multiple modes: Automatic and manual
- Automatic mode allows for a single sprinkler type to be placed in preset arrangements
- Manual allows for multiple sprinklers to be placed as desired

S

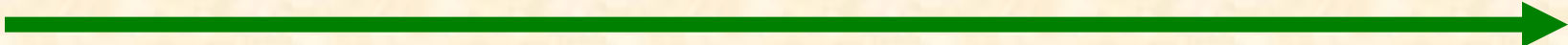
Architecture Illustrated



Architecture Illustrated, cont.



Screen Shot



Irrigation Distribution Uniformity Analysis

File Tools

Auto Manual

X: Y: Angle:

Clear Graph Densogram Print

Toggle Grid

Square
 Triangle
 Line

Load File

Clear Selected

Distribution Uniformity: Scheduling Coefficient: Model:

Christiansen's Uniformity: Precipitation Rate: PSI:

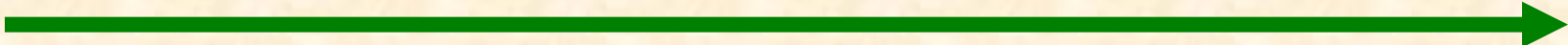
Comments

Irrigation Distribution Uniformity Analysis

TORO



Screen Shot



Irrigation Distribution Uniformity Analysis

File Tools

Auto Manual

X: 308 Y: 441 Angle: 0.0

Print

TORO

Load File

Clear Selected

Comments

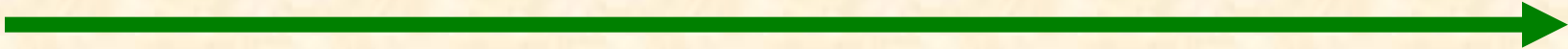
Irrigation Distribution Uniformity Analysis

Load Test Sprinkler

- 20095-3
- 20095-4
- 20095-5
- 20095-6
- 20095-7
- 20095-8
- 20095-9
- 20095-10
- 20095-11
- 20095-12
- 20095-13
- 20095-14
- 20095-15
- 20095-16
- 20095-17
- 20175-1
- 20-1
- 20067-1
- 20067-2
- 20067-3
- 20067-4
- 20067-5

OK Cancel

Screen Shot



Irrigation Distribution Uniformity Analysis

File Tools

Auto Manual

X: 186 Y: 238 Angle: 0.0

Clear Graph Densogram Print

Toggle Grid

Square
 Triangle
 Line

Load File

- 20095-5
- 20095-13
- 20-1

Clear Selected

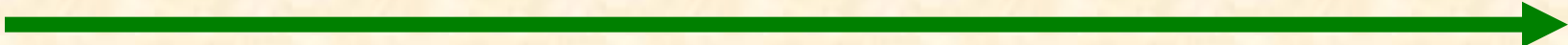
Distribution Uniformity: Scheduling Coefficient: Model:

Christiansen's Uniformity: Precipitation Rate: PSI:

Comments

Irrigation Distribution Uniformity Analysis

Screen Shot



The screenshot shows the 'Irrigation Distribution Uniformity Analysis' software window. The interface includes a menu bar with 'File' and 'Tools'. Below the menu bar, there are radio buttons for 'Auto' (selected) and 'Manual'. Input fields for 'X: 449', 'Y: 415', and 'Angle: 0.0' are present, along with 'Clear Graph', 'Densogram', and 'Print' buttons. A grid displays five blue triangles representing data points. To the right of the grid are options for 'Toggle Grid', 'Square', 'Triangle', and 'Line' (selected). A red sidebar on the right contains the 'TORO' logo, a 'Load File' button, a list of files (20095-5, 20095-13, 20-1) with 20095-13 selected, and a 'Clear Selected' button. At the bottom, there are input fields for 'Distribution Uniformity', 'Scheduling Coefficient', 'Model', 'Christiansen's Uniformity', 'Precipitation Rate', and 'PSI', along with a 'Comments' text area. A red banner at the bottom of the window reads 'Irrigation Distribution Uniformity Analysis'.

Screen Shot



Irrigation Distribution Uniformity Analysis

File Tools

Auto Manual

X: 446 Y: 212 Angle: 0.0

Clear Graph Densogram Print

Toggle Grid

Square

Triangle

Line

Load File

- 20095-5
- 20095-13
- 20-1

Clear Selected

Distribution Uniformity: Scheduling Coefficient: Model:

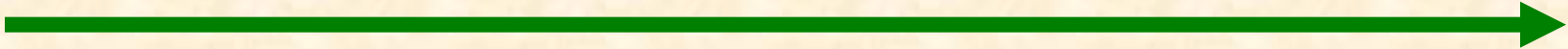
Christiansen's Uniformity: Precipitation Rate: PSI:

Comments

Irrigation Distribution Uniformity Analysis



Screen Shot





What's left to do?

- Dynamic densogram
- Allow placement of multiple types of sprinklers
- Zoom
- Export
- Toggle modes
- Coefficient of scheduling calculation