MICHIGAN STATE UNIVERSITY

Technical Specification / Schedule
PC Control

Team 10: Team Toro

CSE 498, Collaborative Design

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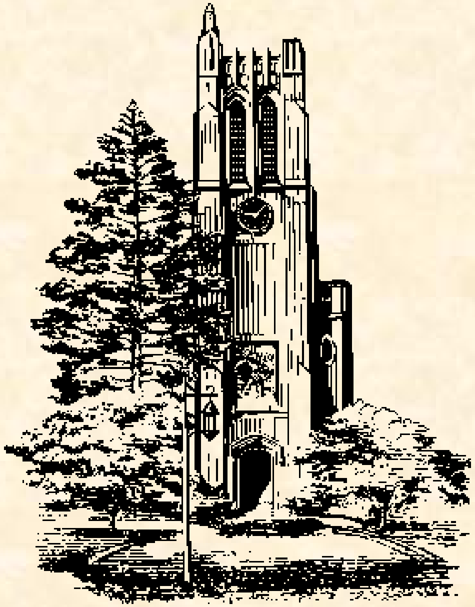
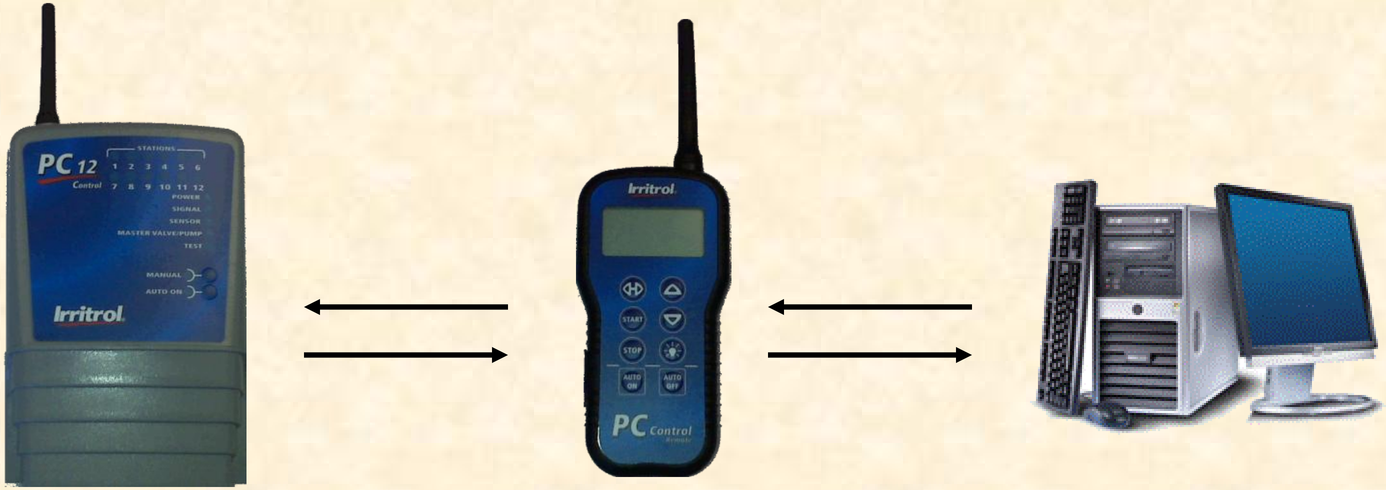
Spring 2008



Project Overview

- Controller
  - Receives signals from USB Remote with information on desired watering and lighting behavior
  - Implements schedule by sending power to appropriate zones
- USB Remote
  - Sends signals to Controller wirelessly
  - Communicates with PC Control via USB
- PC Control
  - Create watering and lighting schedule
  - Clean, usable user interface

Architecture Illustrated



Functional Specifications

- Controller Schedule stored in XML format
  - UI generates XML based on user input
  - XML packaged and sent to Controller for implementation
  - Advanced error handling for failed parsing
- User Interface allows for easier navigation
  - WPF animations
  - Fewer dialog box interruptions
  - Tabbed windows
    - Maximize use of screen real estate
    - Abstracts tools into logical categories

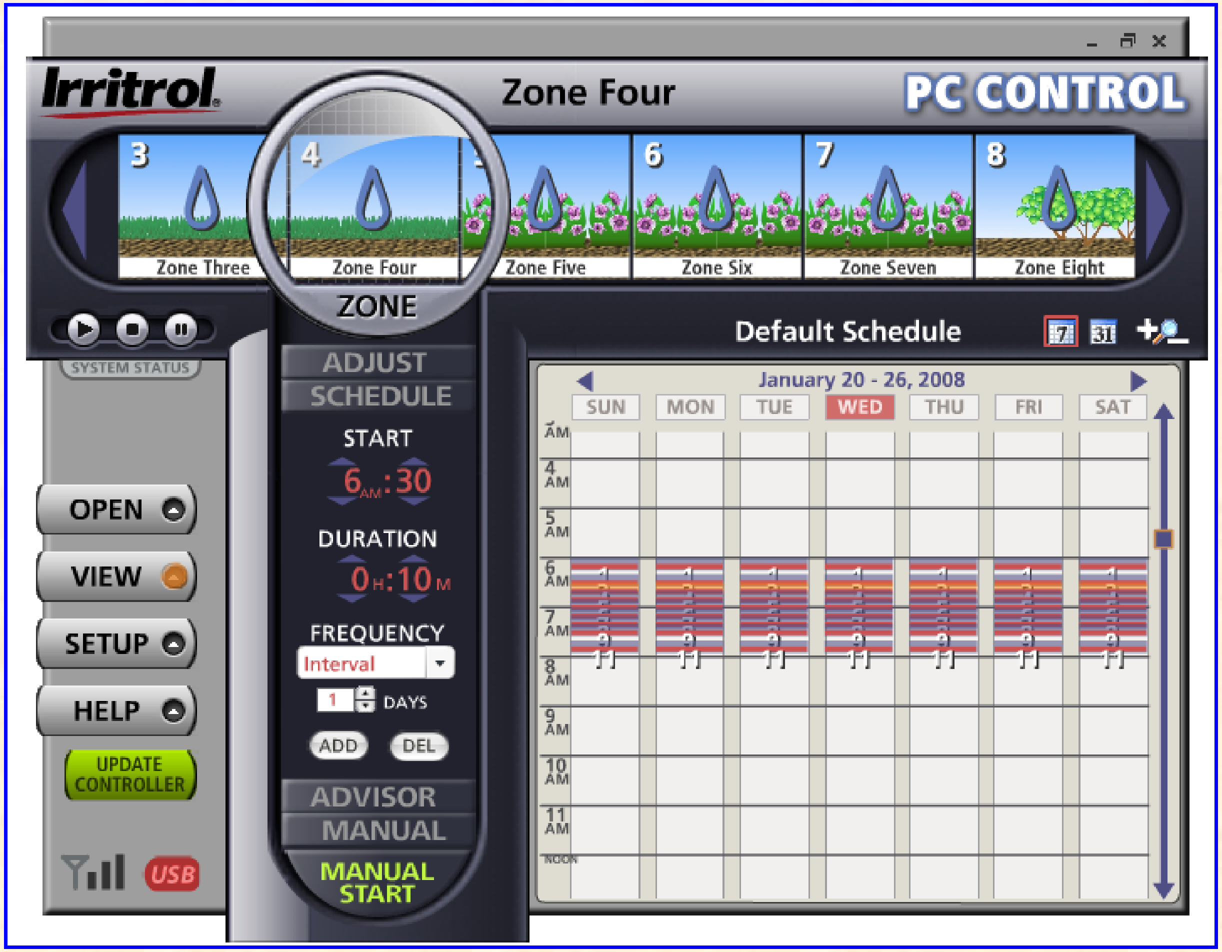
Functional Specifications

- Advisor scheduling
  - Implement hardware restrictions in software
  - Utilize environmental variables to develop schedule
  - Interface with internet to retrieve weather information
- USB Drivers
  - Reduce unnecessary polls to hardware
  - Add asynchronous functionality to driver
  - Improve handling of failed communications

System Components

- Hardware Platforms
  - Controller
  - USB Remote
  - PC
- Software Platforms / Technologies
  - Windows XP and Vista
  - Windows Presentation Foundation
  - Visual Studio 2008
  - .NET Framework v 3.5
  - C# 3.0

Architecture Illustrated



START 6 AM :30

DURATION 0 H:10 M

FREQUENCY Interval

1 DAYS

January 20 - 26, 2008

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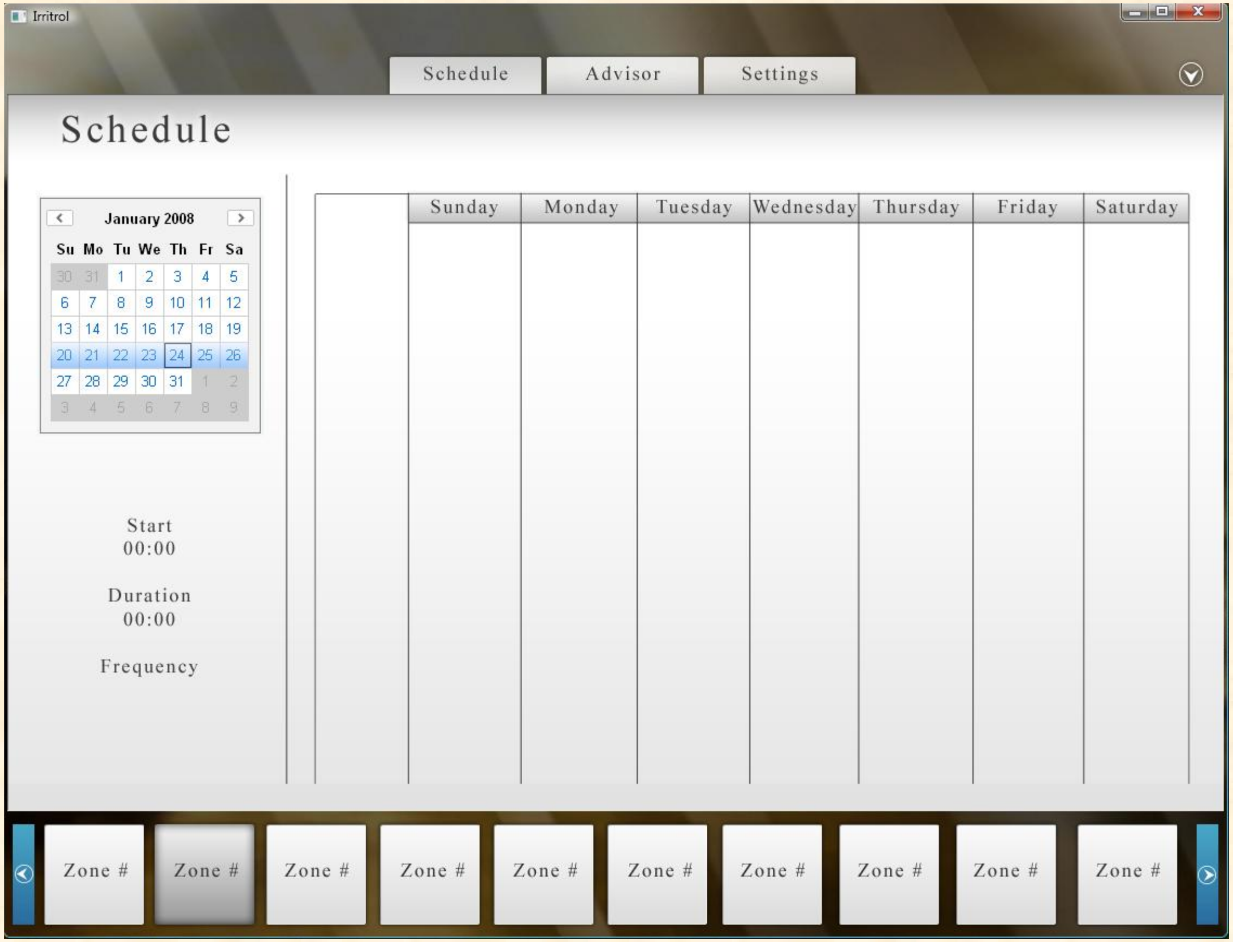
Architecture Illustrated



Schedule

January 2008

Su	Mo	Tu	We	Th	Fr	Sa
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

Start
00:00

Duration
00:00

Frequency

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

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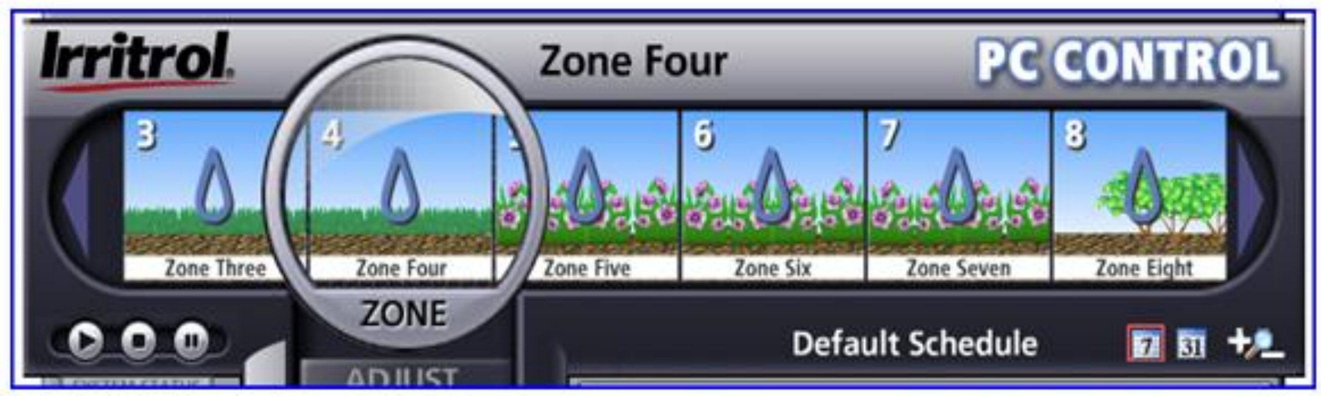
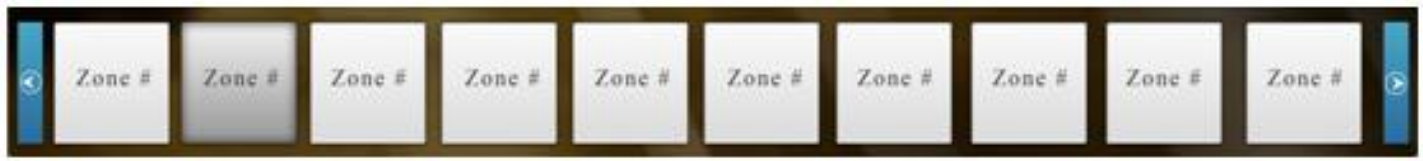
Architecture Illustrated





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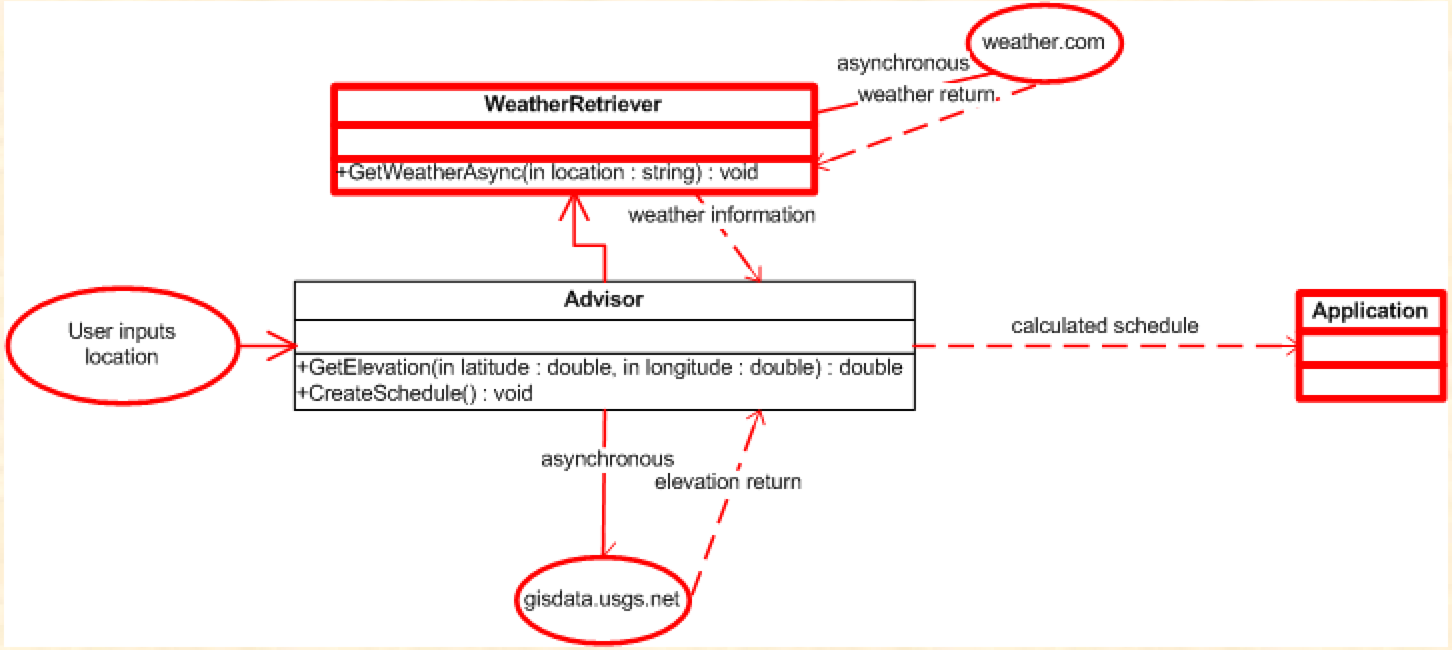
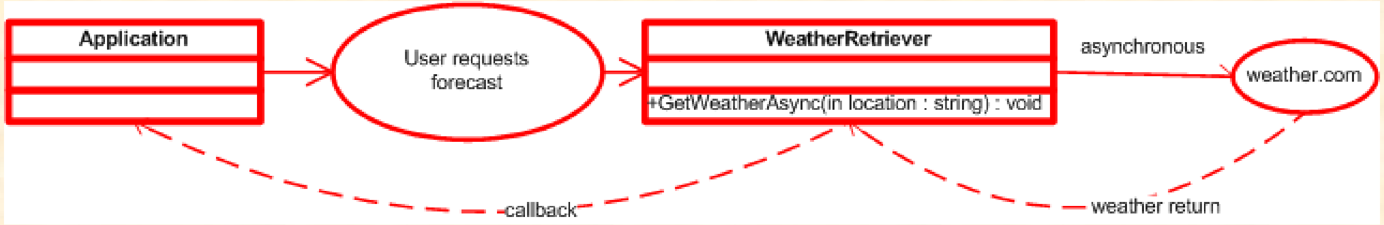
Architecture Ilustrated

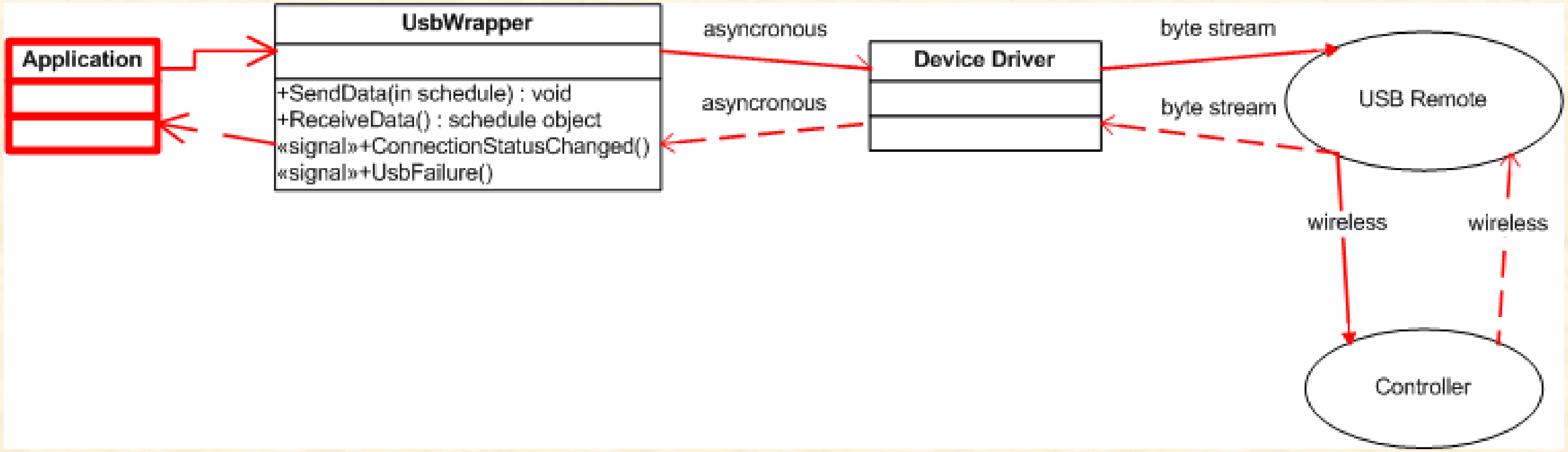
- Scheduling Advisor





Architecture Ilustrated

- USB Communication



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Risks

- USB Drivers
  - Ensure compatibility for Vista and XP
  - Purchased and studying USB Complete textbook
- Porting Action Scripts functionality to C#
  - Maintain developed functionality
  - Refine functionality with event handlers
- Windows Presentation Foundation
  - Develop aesthetically pleasing modern UI
  - Use Expression Blend to create UI

Project Schedule

February 1

- Outer window
- Settings
- Helper dialogs
- Initial WPF animations
- Some styling completed
- Gain understanding of USB Complete
- Break down driver code for understanding

February 8

- Save and load schedules into application (parsing only)
- Have interface successfully detect remote
- Images (logos, etc) placed and loaded into interface
- Write driver than can successfully communicate with application

Project Schedule

February 15

- Advisor taking input and returning text
- All dialogs present
- Basic templates applied to controls
- Detect OS for visual settings
- Interface to send information to USB device
- USB driver that’s discoverable and has minimal functionality

February 22

- Balloons for error or info messages where no click is necessary (ie when USB device successfully connected)
- Save location for weather
- Store list of favorite zips for weather (useful for contractors)
- Parsed schedule to be displayed in the schedule window
- USB to be able to manually turn on and off zones
- USB to be able to send/receive schedules

Project Schedule

February 29

- Imposing hardware/software restricts
- Manual mode
- Scheduling mode
- Rain sensor implementation
- Manual Scheduling

March 14

- Distinguish between lighting and watering
- Fully functional schedule
- All animations and styles finalized and consistent
- Plan video

March 21

- Debugging
- Video development

March 28

- Project video

Project Schedule

April 4

- Tweaking to desirable behavior
- Bug fixes

April 11

- Finish GUI
- Zero bugs
- Create installation package

April 18

- Prepare for Design Day

April 25

- Design Day