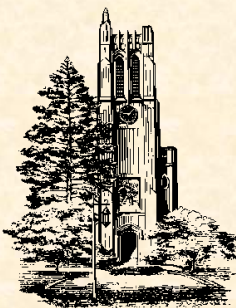




MICHIGAN STATE  
UNIVERSITY

## Technical Specification / Schedule Golf Vision Interface for Turf Guard



Team 8: Toro  
CSE 498, Collaborative Design

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## S Project Overview

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- Our desktop application will have at least the same functionality as the existing web based interface. It will cache data for higher performance.
- The user interface needs to be easier to use than the existing web interface.
- We are to create a DLL which does everything related to communication with a server. This DLL will be used by our desktop application and an unreleased Toro software suite.
- The sensor network and database is already working so our application assumes all of that is in place.
- Users can manage and save information for multiple courses.

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## S Functional Specifications



- Users can manage multiple courses and save their credentials for each course.
- Users can specify exactly what they see on a chart(eg. view window, salinity, moisture, and temperature)
- Course data is received and updated every five minutes.
- Received data is cached.
- Users can set thresholds for each soil property and receive alerts when exceeded.

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## S System Components

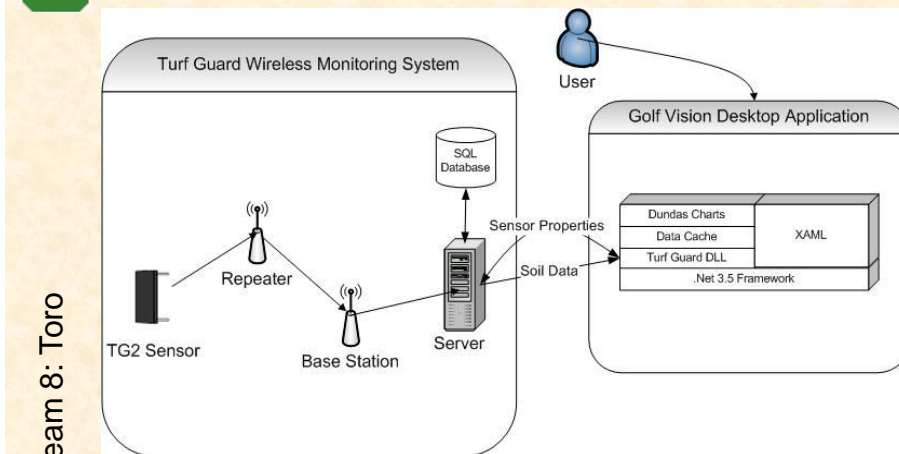


- Hardware
  - Remote database servers
  - Sensors
  - Repeaters
  - Base Station
- Software Platforms / Technologies
  - .NET 3.5 Framework
  - C#
  - WPF Interface
  - Dundas Charts
  - SQL Databases
  - Archer server plugin architecture

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## Architecture Illustrated



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## Risks

- Team 8: Toro
- Server Plug-in DLL Interface
    - We must follow a standardized plug-in interface for our DLL and the Archer server.
    - Read plug-in specification documentation.
  - Chart Presentation
    - We need an intuitive and customizable method of displaying data.
    - GUI mockups and several design iterations.
  - Cache
    - We need to cache received data and expel least recently used data.
    - Create a good XML schema that will be able to show what data has been used least recently.
  - Database
    - We do not know the structure of the databases.
    - Acquire access to sample databases.

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**S** Project Schedule

**Features Scheduled for Alpha (Oct. 6)**

**Login – Brett, Brian**

- Basic Login GUI (Sept. 15 - 16)
- Creating XML schema (Sept. 15 - 16)
- Displaying saved logins (Sept. 17 -19)
- Saving of new logins (Sept. 17 - 19)

**Charts - Eric**

- Connect chart to test data (Sept. 15 -16)
- Slide viewing area on shown date range (Sept. 16 - 22)
- Expand viewing area on shown date range (Sept. 21 - 22)
- Expand / Contract shown date range (Sept. 23 - 30)

**DLL – Jake, Brian**

- Create SQL database connection (Sept. 15 - 16)
- Get range of data from database (Sept. 17 - 23)
- Put retrieved data in XML (Sept. 24 - Oct. 3)
- Retrieve sensor names (Sept. 17)

**UI - Everyone**

- Organization of tabs (Sept. 15 )
- Tab content layout (Sept. 16 - 18)
- Basic GUI creation (Sept. 15 - 20)

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**S** Project Schedule

**Features Scheduled for Beta (Nov. 3)**

**Login – Brett, Jake**

- Password encryption (Oct. 7 - 9)
- Test database credentials feature (Oct. 7 - 8)

**DLL – Jake, Eric**

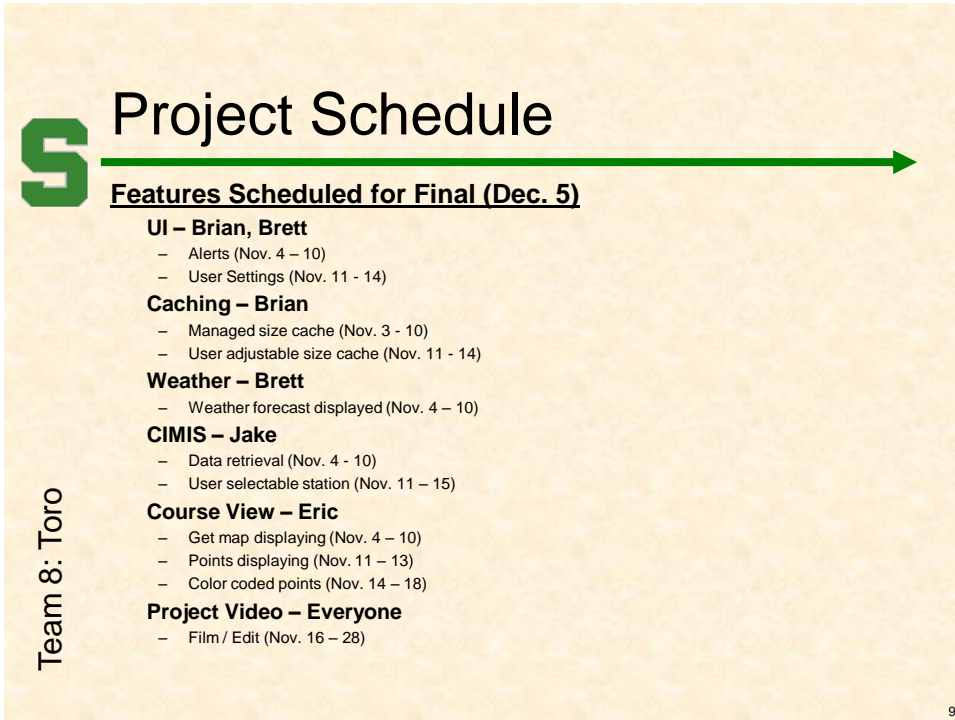
- Modify sensor properties (Oct. 7 - 8)
- Retrieve / modify acceptable ranges (Oct. 7 - 10)
- Custom data queries (Oct. 7 - 14)
- Periodic data update retrievals (Oct. 7 - 13)
- Superintendents notes (Oct. 7 – 15)

**Caching – Brian**

- Unmanaged size cache (Oct. 7 - 28)

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# S Project Schedule

## Features Scheduled for Final (Dec. 5)

**UI – Brian, Brett**

- Alerts (Nov. 4 – 10)
- User Settings (Nov. 11 - 14)

**Caching – Brian**

- Managed size cache (Nov. 3 - 10)
- User adjustable size cache (Nov. 11 - 14)

**Weather – Brett**

- Weather forecast displayed (Nov. 4 – 10)

**CIMIS – Jake**

- Data retrieval (Nov. 4 - 10)
- User selectable station (Nov. 11 – 15)

**Course View – Eric**

- Get map displaying (Nov. 4 – 10)
- Points displaying (Nov. 11 – 13)
- Color coded points (Nov. 14 – 18)

**Project Video – Everyone**

- Film / Edit (Nov. 16 – 28)

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