Title
Cohesion Web Interface to EmStar

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Cohesion: Web Interface to EmStar

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Introduction: What is EmStar?

**Software Description**

- **EmStar Objective**
  EmStar is a software system for developing, testing and deploying wireless sensor networks. It runs on a Linux platform.

- **Specifications**
  EmStar runs on a Linux host or a Stargate microserver. It is used to control the motes, which are more constrained in terms of memory and processing capability. EmStar is designed for robustness and flexibility.

**Components**

- **EmRun** is the core of EmStar. It starts, stops and manages EmStar processes, creates error/debug/data logs, and facilitates inter-process communication.
- **EmSim** is the simulator and emulator for wireless sensor networks, it executes in a similar way to EmRun.
- **EmView** is a visual representation of the node network and highlights network problems.

Problem Description: EmStar accessibility is limited to proficient Linux-users

**Summary:**

“Normal” users with little or no background in computer science may have trouble using EmStar to monitor their wireless sensor networks!

**Current Status**

- Interaction with EmStar is command line based in a Linux terminal.
- Running any programs require basic knowledge of Linux commands and usage.
- Sending even simple queries demand users to know obscure enumerations of parameter names.

Proposed Solution: Easy to Use Web Interface

**Title of Interface: Cohesion**

In a wireless sensor network deployment, the master Stargate can be guaranteed to have reliable internet connection. The rest of the Stargates can simply forward the data they collect to the master. Cohesion will allow the user to monitor the status of the entire sensor network with a basic knowledge of the internet, by only communicating with the master Stargate.

**CGIC Programming and Dynamic Webpages**

- **CGIC** is an ANSI C-language library for the creation of CGI-based World Wide Web applications.
- Common Gateway Interface (CGI) queries users for information and then dynamically displays relevant information on a webpage.
- With Cohesion, users can fill out simple forms to access the specified data they desire without having to memorize lengthy commands.
- Cohesion also returns feedback to the user on the status of their inputs.

Future Goals: Adding More Functionalities and Features to Cohesion

Cohesion is expanding and will replace more of the command-line methodology of interacting with EmStar.