“Site Stall”

**Software Design Specification**

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1. **Revision History**

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| **Date** | **Author** | **Description** |
| 02-13-2020 | SW | Created initial document |
| 02-13-2020 | JL | Created System Architecture Diagram |
| 02-13-2020 | NT | Finished “Section 3 - Software Architecture” |
| 02-13-2020 | SW | Finished “Section 2 - System Overview” |
| 02-18-2020 | SW | Began working on Use Cases |
| 02-19-2020 | SW | Updated “Section 3 - Software Architecture” |
| 02-19-2020 | NT | Finished “Section 4 - Software Modules” |
| 02-20-2020 | SW | Finished static diagrams |

1. **System Overview**

The “Site Stall” system will provide a variety of useful services to the user, the most prominent being the ability to limit distractions and access to those distractions. The distractions that the system will limit access to will be websites that the user decides to flag. This system will be organized in three strongly cohesive modules. These modules include the Distraction Interface, the Data Manager and the Blocking System.

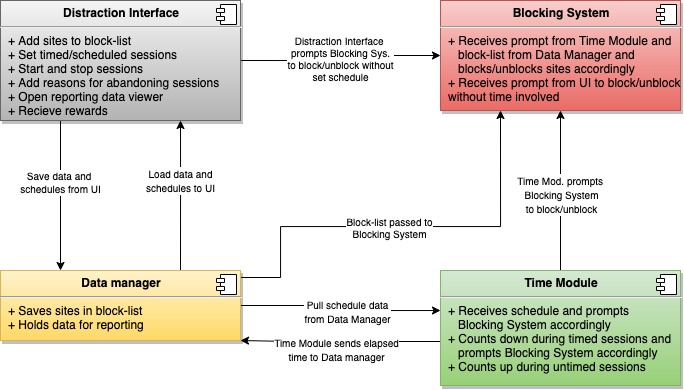
The Distraction Interface will be the main user interface and user interaction module. This is where the user will interact with the system to perform tasks such as selecting which website they want to limit access to, receiving reports showing their use of the system and interacting with the software during use to create blocking sessions and receive motivational “rewards” to promote continued interaction. The Distraction Interface module will interact with the other modules by passing and receiving data to the Data Manager module and sending and receiving information to/from the Blocking System module.

The Time Module will deal with all things related to time within the system. This module will be in charge of recording time spent in a session, counting down and then alerting the Blocking System when time is up and prompting the Blocking System when a session is scheduled to start or stop.

The Data Manager module will be in charge of the data of the system including blocked websites and user performance data. This module will include a data structure and functionality to save user data between sessions for seamless transitions from system stop to system start. In regards to interfaces between other modules, the Data Manager module will send and receive data to and from the Distraction Interface module. The data stored within the Data Manager module will also be made available to the Blocking System module.

The Blocking System module will provide the core functionality of the “Site Stall” software. This module will be in charge of blocking user-defined websites from being accessed. The Blocking System module will also be in charge of scheduling sessions of distraction-limitation based on input from the user. The module will interact with the Distraction Interface module by receiving user-defined schedules determining when to block sites and for how long. This module will also be responsible for sending information to the Distraction Interface indicating which sites are currently blocked.

1. **Software Architecture**



*Initial “SiteStall” Architecture with four Modules and Interactions*

**3.1 Components:**

* Distraction Interface
  + Website Selection - This component will be a drop-down style list that allows the user to enter, select, and deselect websites to block.
  + Rewards System - This component will present the user with a reward such as a joke or short break, at a given interval.
  + Reporting - This component will allow the user to view their use of the system.
* Data Manager
  + Saving - This component will preserve the user’s selected list of blocked sites between sessions.
  + Blocklist - This data structure will manage the list of blocked websites.
* Blocking System
  + Website Blocker - This component will restrict access to the websites specified by the user.
* Time Module
  + Timer - This component will track the elapsed times of sessions with no pre-defined duration.
  + Scheduler - This component will allow the user to schedule sessions in the future.
  + Countdown - The Countdown component will create a session for a fixed amount of time, after which websites in the Blocklist will be unblocked.

**3.2 Component Interactions:**

The Distraction Interface and Data Manager components will pass data to each other in various ways. Website selections will be sent from the Distraction Interface to the Data Manager, where they will be added to the Data Structure and saved by the Saving component. The Distraction Interface will load data from the Data Manager on system startup.

The Distraction Interface and Blocking System will interact bidirectionally. The Blocking System will send the Distraction Interface the status of which websites are being blocked, which will be reflected by the interface. The Distraction Interface will pass the Blocking System the websites which should be blocked and unblocked.

The Time Module interacts with both the Blocking System and the Data Manager. Scheduling information and session times are passed between the Data Manager and the Time Module. Additionally, the Time Module will prompt the Blocking System to block or unblock the websites contained in the Blocklist.

1. **Software Modules**

**4.1 Distraction Interface**

a. The module’s role and primary function:

The Distraction Interface will allow the user to add sites to the blocklist,

set a schedule or timer, start or stop a session, and review session data.

b. The interface to other modules:

Data such as the user’s schedules and the blocklist must be passed between the Distraction Interface and the Data Manager.

c. Static Model:



*Static objects and relationships the Dustraction Interface involves*

d. Design Rationale:

A GUI must provide the user with a clear means of selecting which websites the system should block, and the span of time in which this blocking should occur.

**4.2 Blocking System**

a. The module’s role and primary function:

The blocking system prevents access to websites in the blocklist. This operation can also be undone, restoring access to previously blocked websites.

b. The interface to other modules:

The Blocking System will be passed the blocklist via the Data Manager, and will be prompted to block or unblock websites by either the Time Module or the Distraction Interface

c. Static Model:



*Static objects and relationships the Blocking System Module involves*

d. Design Rationale:

When prompted by the Time Module, this module only needs access to the blocklist to block or unblock the user-specified set of websites.

**4.3 Data Manager**

a. The module’s role and primary function:

The Data Manager handles the storage and retrieval of session information between sessions. This data can be used to generate reports and track study habits. Additionally, this module creates and manages the blocklist, a list of all websites and website groupings which the Blocking System will prevent access to.

b. The interface to other modules:

Data such as elapsed time will be passed from the Time Module to the Data manager. The blocklist will be passed between this module and the Distraction Interface.

c. Static Model:

*Static objects and relationships the Data Manager Module involves*

d. Design Rationale:

Information from previous sessions and past blocklists should persist between sessions. It is therefore required that this information can be loaded and stored from files, as well as modified by the user via the Distraction Interface.

**4.4 Time Module**

a. The module’s role and primary function:

The Time Module manages the duration during which access to websites in the blocklist is prevented. The Time Module will provide the following three alternatives:

* Website blocking can be scheduled to take place in the future for a given duration.
* A session can be started immediately, and last a given amount of time. At the end of the specified duration, access to websites in the blocklist will be restored.
* Sessions of indefinite length can be started. In this case, the system will track the elapsed time of the session.

b. The interface to other modules:

The Time Module manages when the Blocking System should be prompted to prevent access to websites in the blocklist. Records of elapsed time and scheduled sessions will be passed back and forth between the Time Module and the Data Manager.

c. Static Model:



*Static objects and relationships the Time Module involves*

d. Design Rationale:

The Distraction Interface must prompt this module to begin one of its three modes of timing. This module groups the three modes listed above because they all manage the temporal aspects of the system.

1. **Use Cases**

*A. A user wishes to input distractions into the “Site Stall” software*

Preconditions: The user must have the “Site Stall” software downloaded on their machine and already know which websites they wish to limit their access to.

1. The user decides they wish to limit accessibility to distractions in the form of websites and opens the “Site Stall” software.

2. Personally knowing which websites pose the largest distraction, the user enters website URLs into the “Site Stall” interface. Such sites may include [www.facebook.com](http://www.facebook.com), [www.youtube.com](http://www.youtube.com) or other pages acting as distractions.

*B. A user wishes to use the “Site Stall” software for an undefined amount of time*

Preconditions: The user must have the “Site Stall” software downloaded on their machine and already have websites entered into the system.

1. The user decides they wish to limit accessibility to distractions in the form of websites and opens the “Site Stall” software.

2. The user then uses the “Site Stall” interface to start a new session which then blocks access to every website currently recorded in the “Site Stall” system.

3. When the user decides their session of distraction blocking has concluded, they use the “Site Stall” interface to stop the system, thus restoring connections to previously blocked websites.

*C. A user wishes to use the “Site Stall” software for a specified amount of time*

Preconditions: The user must have the “Site Stall” software downloaded on their machine and already have websites entered into the system.

1. The user decides they wish to limit accessibility to distractions in the form of websites and opens the “Site Stall” software.

2. The user then uses the “Site Stall” interface to start a new session for a set amount of time, (3 hours for example).

3.1. Upon the set amount of time concluding, connections to previously blocked websites are restored and the user receives a notification from the system that their session was completed successfully.

3.2. Upon the user attempting to cancel their session before the set time has passed, the system will prompt the user to specify the reason for abandoning the session and will record it as an interrupted session.

*D. A user wishes to set a schedule of use for the “Site Stall” software.*

Preconditions: The user must have the “Site Stall” software downloaded on their machine and already have websites entered into the system. Additionally the system must be running during the scheduled time-frame.

1. The user decides they wish to set a schedule limiting the accessibility to distractions in the form of websites and opens the “Site Stall” software.

2. The user then uses the “Site Stall” interface to create a schedule of times they wish to limit access to certain websites.

3.1. Upon the scheduled session concluding, connections to previously blocked websites are restored and the user receives a notification from the system that their scheduled session was completed successfully.

3.2. Upon the user attempting to cancel their scheduled session before the set time has passed, the system will prompt the user to specify the reason for abandoning the session and will record it as an interrupted session.

*E. A user wishes to view the history of their use of the “Site Stall” software.*

Preconditions: The user must have the “Site Stall” software downloaded on their machine and already have websites entered into the system. Additionally the user will have needed to complete at least one session of site blocking.

1. The user decides they wish to view information on their accumulated use of the “Site Stall” software

2. The user then uses the “Site Stall” interface to navigate to the user performance information interface.

3. From this interface the user can see their total temporal use of the system as well as the total number of sessions they have completed. The user can also see any sessions that were abandoned in addition to any reasons for abandonment that the user specified.

1. **References**

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1. **Acknowledgements**

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