System Design Document

RoboNews.com

"Your Source For Robotics Coverage"

Client

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RoboNews.com
System Design Document

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1. Introduction

1.1 Purpose

The purpose of this document is to explain the design of the RoboNews review website. We will cover the high-level and low-level system architecture, as well as the persistent data design.

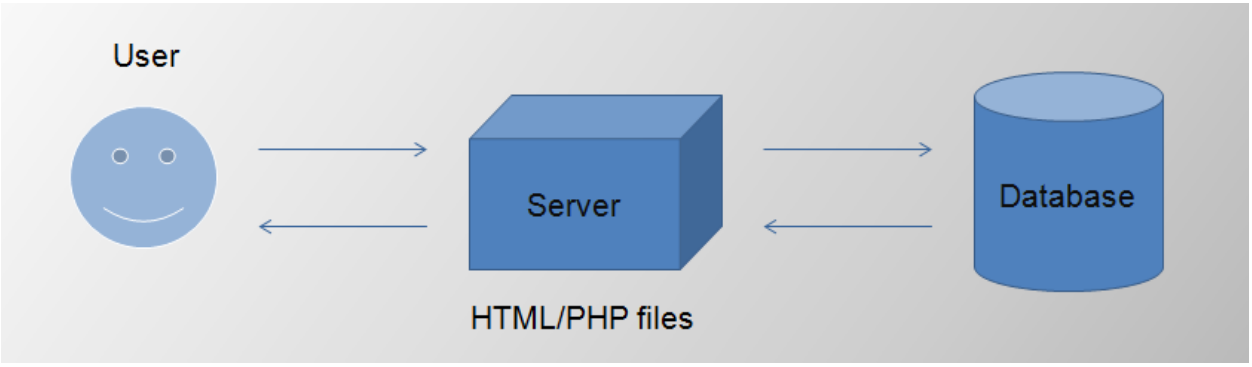
1.2 References

1. RoboNews System Requirements Document
2. RoboNews UI Design Document

2. System Architecture

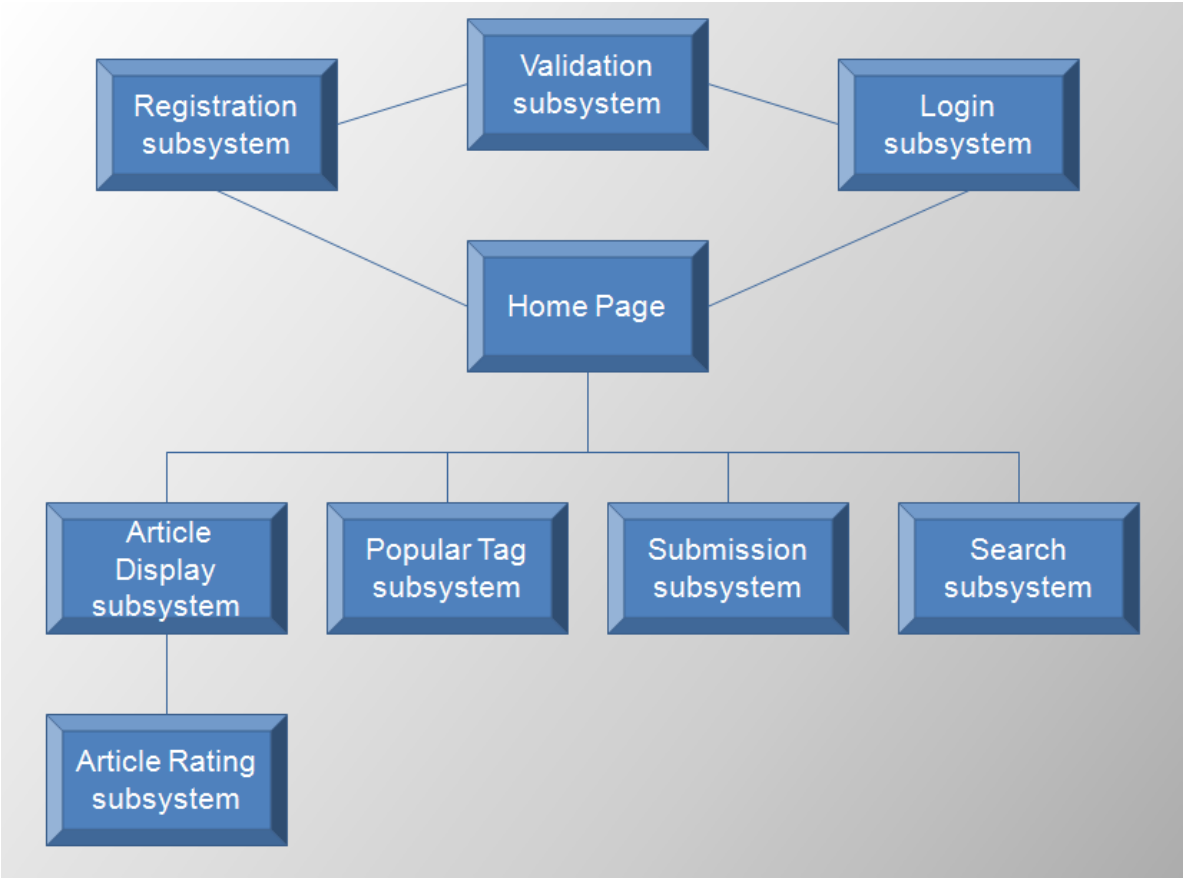
2.1 Architectural Design

Technology Architecture Diagram



The Server consists of PHP and HTML files that respond to requests from the user. These files interact with other files on the server or communicate with the database to handle requests. The purpose of individual files on the server and tables in the database will be explained in greater detail later on in the document.

System Architecture Diagram



As mentioned previously, the RoboNews review website will be created using PHP and HTML, along with a database to store data. The starting component is the home page. From there users can access the Login subsystem to sign in to their account, or the Registration subsystem to create a new account. Both of these subsystems make use of the Validation subsystem to check user input for errors. The submission subsystem and Article Rating subsystem are accessible only to users who are logged in. Users who are not logged in will still have the ability to read and search for articles.

The Submission subsystem allows users to submit a new article to the website along with their personal review/summary of the article. Articles are also given tags—which are similar to categories—during the submission process. These tags are used in the Search subsystem to locate articles that fall under the category of a specified tag (e.g. locomotion). The Article Rating subsystem allows users to “upvote” or “downvote” an article. The Article Display subsystem considers user ratings and several other factors (such as article publication date) to decide which articles should be pushed to the site’s front page. The Popular Tag subsystem behaves in a similar manner, though on a broader scale. It considers the popularity of all articles within a tag and displays the most popular tags at the top of the front page.

2.2 Decomposition Description

File Name	Description
index.php	Login form with username/password fields.
newUser.php	Form for creating a new account.
regUserLogin.php	Processes login information.
submitPage.php	Form for submitting a new article.
CommonMethods.php	Frequently used database methods.
frameTop.html	Common header page.
frameBottom.html	Common footer page.

The basic functionality of each PHP file is explained in the table above. The relationships that exist among these files will be explained below.

The CommonMethods.php file is used by any file that requires database access. It contains two significant methods regarding database operations: connecting to the database and executing SQL queries. Files such as regUserLogin.php and newUser.php make use of CommonMethods.php to access existing records or add new records in the robo_users table.

Another relationship exists between index.php and regUserLogin.php. The index.php page simply provides a login form. The information entered in this form is processed by regUserLogin.php, which connects to the database and verifies the login credentials given by the user. If incorrect information is given, the user will be redirected to the login page and prompted to re-enter their username and password.

The files frameTop.html and frameBottom.html are included in all files that produce HTML code. FrameTop.html consists of the main banner (image of a robot) and a sidebar with several buttons and their corresponding submenus. FrameBottom.html closes the HTML tags opened by frameTop.html (e.g. </body> and </html>). Every page in the website is enclosed between these two files to ensure a consistent look throughout.

3. Persistent Data Design

3.1 Database Descriptions

All persistent data is stored in a MySQL database. The two tables below go into detail about the specific fields and datatypes of each table in the database. Each record in the robo_links table represents an article and all of its attributes. Similarly, each record in the robo_users table is representative of a single user of the website.

robo_links database table

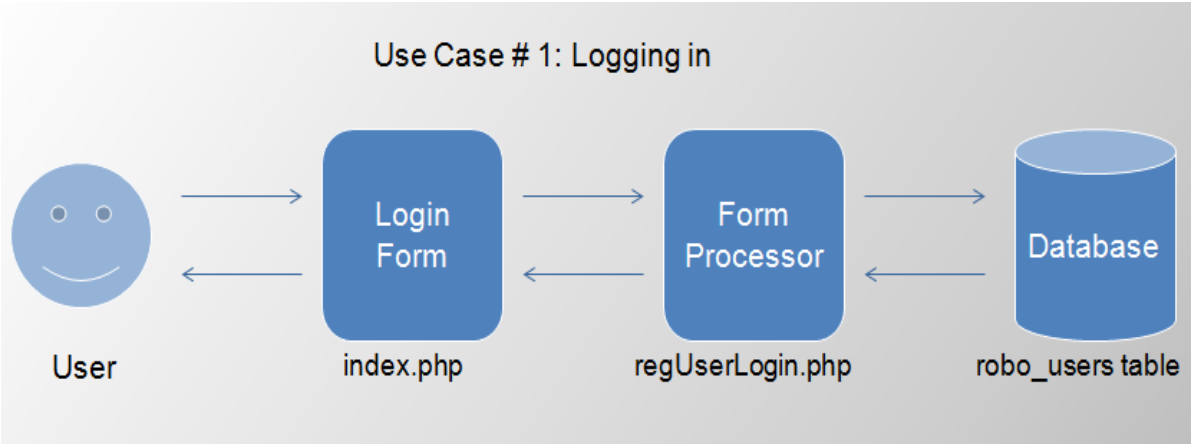
Field	**Datatype**	**Description**
ID	int	unique identifier
title	text	title of article
url	longtext	original url of article
views	mediumint	number of views on our site
rating	float	popularity rating of article (affected by up/downvotes)
tags	longtext	list of tags (comma separated)
review	longtext	review/summary of article
pic_url	text	url of picture (optional field)

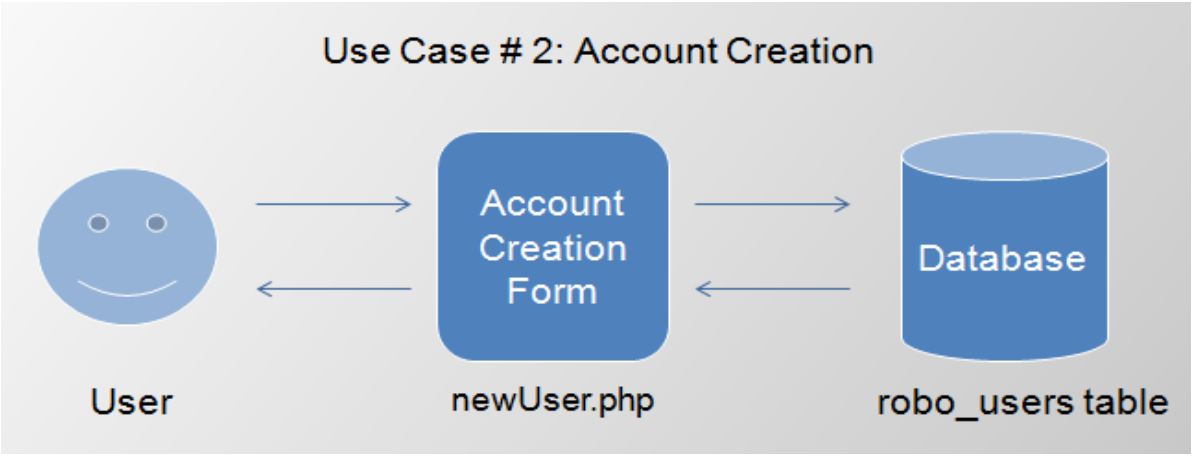
robo_users database table

Field	**Datatype**	**Description**
user_name	tinytext	user's login name
password	tinytext	user's password
email	text	user's email address
type	tinyint	account type (regular or admin), default is 0 (regular)

4. Requirements Matrix

Refer to the System Requirements Document for specific details about each use case.





Appendix A – Agreement Between Customer and Contractor

The customer agrees to a Robotics site that compiles relevant news and informational articles. Articles will be submitted by users of the site, though the team will research and attempt to include a web trawler if time permits. The site will also include search functionality through the use of tags (i.e. categories). Users of the site will also be able rate articles using an upvote/downvote system. The most popular articles and tags will be presented on the front page. The team will continue to implement these features in further development spirals.

Client

Name (signature): _____ Name (print): _____

Date: _____

Team

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Appendix B – Team Review Sign-off

All members of the team have reviewed this document and agree on its content and format. Any minor disagreements are to be listed in the comments section below.

Name (signature): _____ Name (print): _____

Date: _____

Comments:_____

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Appendix C – Document Contributions

This document was completed by Chad Auld. All group members assisted in reviewing and editing the document.