System Requirements Specification

RoboNews.com

"Your Source For Robotics Coverage"

Client

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1. Introduction

1.1 Purpose of This Document

The purpose of this document is to establish and explain specifications of what is desired from the 'RoboNews' application. This document will outline the functional and nonfunctional requirements of the application from the perspectives of both user and system, including use cases that describe the interaction between the user and system.

1.2 References

1.   'RoboNews' UI Design Document

1.3 Purpose of the Product

The 'RoboNews' application is designed to address the need for an ability to track the state of the art in robotics. The application will compile robotics articles and display them to the user in a certain organized fashion that offers relevant results and extensive coverage of the specific user-desired robotics topic. The application will act as a thorough central source and smart presentation tool of robotics news.

1.4 Product Scope

The following summarizes some, but not all of the currently relevant use cases involved. At this point in development, this is list in not currently extensive:

● The application allows users to create their own personal account.
● The application allows users to sign in to their personal account in order to gain submission privileges.
● The application allows users to submit an article.
● The application allows users to search for an article.
● The application allows an administrator to block or unblock a user account from the system.
● The application allows an administrator to edit a user submission.

Please refer to Figure 1 below for a top-level use case and context diagram. Figure 1 shows how the user interacts with the system to achieve the above mentioned relevant use cases.

Figure 1:

Top-Level Use Case & Context Diagram
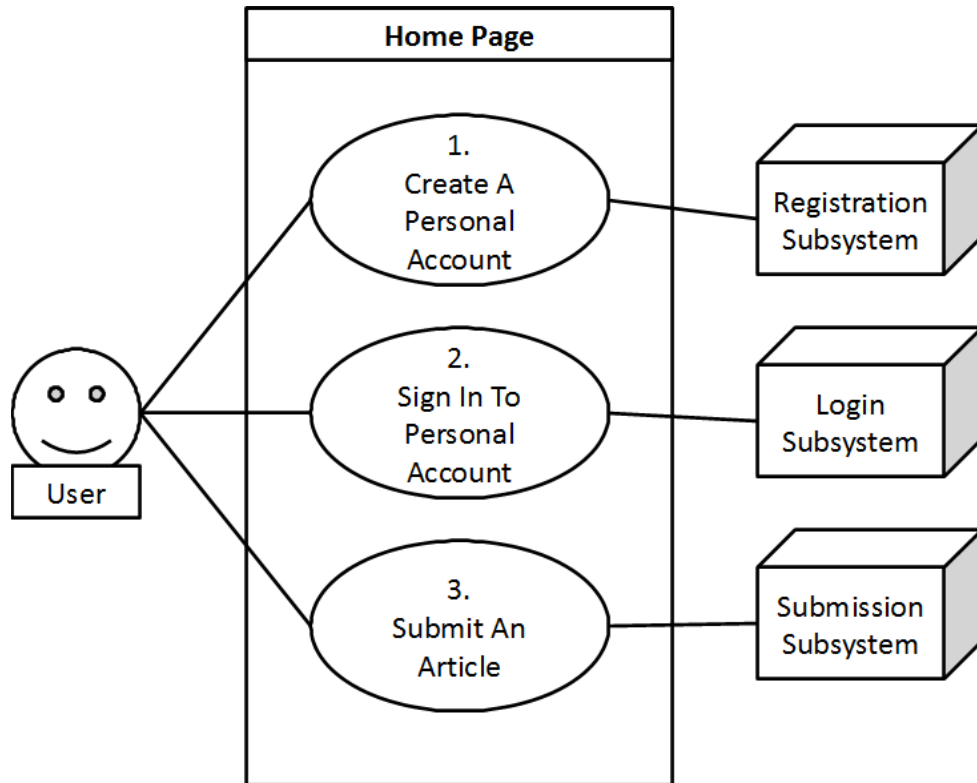
Figure 1 continued:
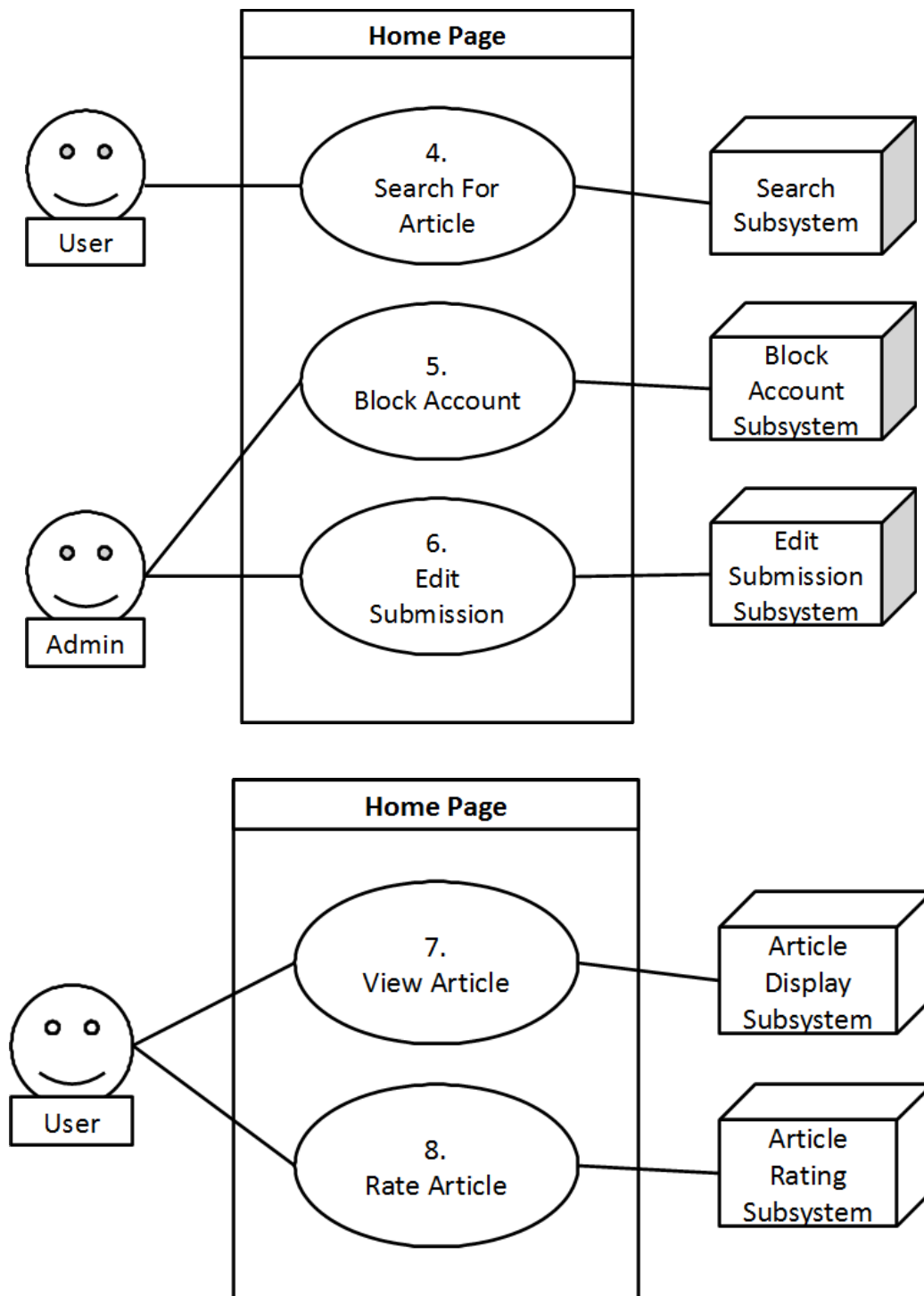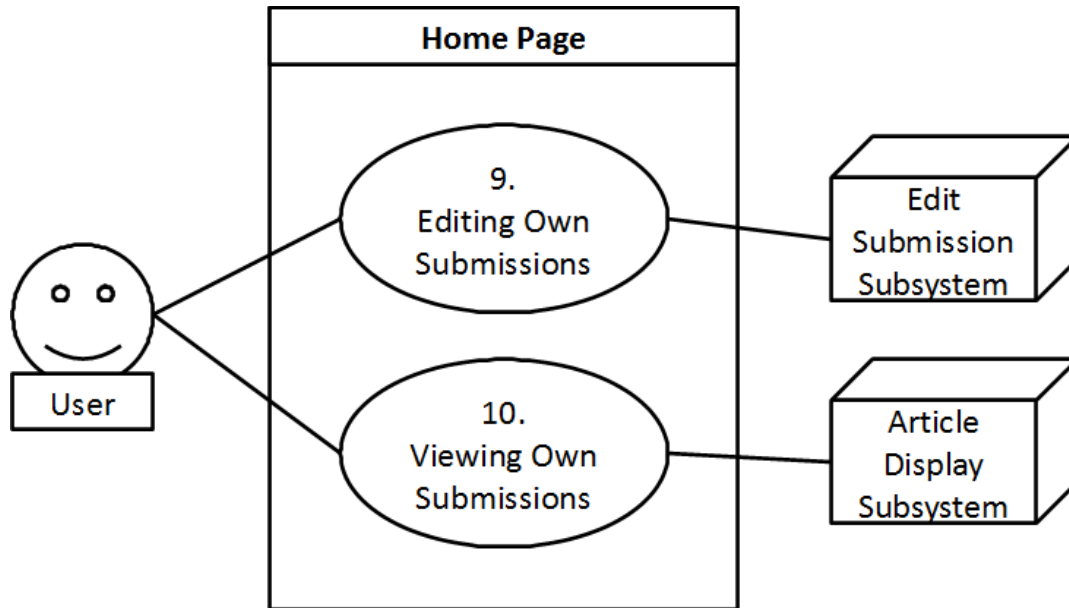
2. Functional Requirements

This section describes the functions that the system provides.
For a top-level overview of the use cases, see Figure 1.

2.1 Use Case # 1

Number	1	
Name	Create A Personal Account	
Summary	A user creates a personal account	
Priority	5	
Preconditions	The user has ready a username, password, and email address	
Postconditions	The system registers a personal account with the user's submitted information, and notifies of	

	success.	
Primary Actor	User	
Secondary Actors	Registration Subsystem	
Trigger	The user has opened the account creation page	
Main Scenario	Step	Action
	1	The user opens the account creation page
	2	The user enters their information into the appropriate fields
	3	The user clicks the registration button
	4	The system registers a personal account for the user, notifying of success.
Extensions	Step	Branching Action
	4a	The system rejects the submission due to an error, notifying of failure. This includes an empty field or invalid information
Open Issues	1	What constitutes a submission error in step 4a? Does the system check for redundant information across users?

2.2 Use Case # 2

Number	2	
Name	Sign In To Personal Account	

Summary	A user signs into their personal account	
Priority	5	
Preconditions	The user has ready their username and password	
Postconditions	The user is logged into the system and the appropriate page variables are set. A user can now submit an article.	
Primary Actor	User	
Secondary Actors	Login Subsystem	
Trigger	The user has opened the login page	
Main Scenario	Step	Action
	1	The user opens the login page
	2	The user enters username and password into the appropriate fields
	3	The user clicks the login button
	4	The system logs the user in, setting the appropriate page variables, and allowing submissions.
Extensions	Step	Branching Action
	4a	The system rejects the user login due to an error. This includes an empty field or invalid login information
Open Issues		

2.3 Use Case # 3

Number	3	
Name	Submit An Article	
Summary	A user submits an article to the system.	
Priority	5	
Preconditions	The user is logged in and has ready a title, URL, tag(s), and rating.	
Postconditions	The system creates and stores a submission entry with the given information, and notifies of success.	
Primary Actor	User	
Secondary Actors	Submission Subsystem	
Trigger	The user has opened the submission page.	
Main Scenario	Step	Action
	1	The user opens the submission page
	2	The user enters into the appropriate fields a title, URL, tag(s), and rating.
	3	The user clicks the submission button.
	4	The system creates a submission entry with the given information and stores it onto the database, notifying of success.
Extensions	Step	Branching Action

	4a	The system rejects the submission due to an error, notifying of failure. This includes an empty field or an invalid entry.
Open Issues	1	What constitutes an invalid entry? Does the system check for redundant submissions or invalid URL's?

2.4 Use Case # 4

Number	4	
Name	Search For Article	
Summary	A user searches the database for an article.	
Priority	5	
Preconditions	The user has ready a search keyword and is on the home page.	
Postconditions	The system displays articles that contain the provided search keyword	
Primary Actor	User	
Secondary Actors	Search Subsystem	
Trigger	The user opens the home page and focuses the search text field.	
Main Scenario	Step	Action
	1	The user opens the home page.
	2	The user enters a search

		keyword into the search field.
	3	The user clicks the search button.
	4	The system displays a grid of articles from the database that include the provided search keyword.
Extensions	Step	Branching Action
	4a	The system displays no articles because none that include the search keyword could be found.
Open Issues	1	Should the search work case sensitive?

2.5 Use Case # 5

Number	5	
Name	Block Account	
Summary	An admin blocks or unblocks a user account.	
Priority	4	
Preconditions	An admin is logged in and is on the block account page.	
Postconditions	The system updates the banned user's attributes to indicate that they have been blocked or unblocked, thus restricting or unrestricting their account access.	
Primary Actor	Admin	

Secondary Actors	Block Account Subsystem	
Trigger	The admin has opened the block account page.	
Main Scenario	Step	Action
	1	The admin opens the block account page.
	2	The admin enters a username into the username field.
	3	The admin selects the block or unblock radio button and clicks submit.
	4	The system updates the entered users attributes to block or unblock them, thus restricting or unrestricting their access to the system.
Extensions	Step	Branching Action
	4a	The system fails to act on the request because the username field was invalid. The system refreshes the page and takes no further action.
Open Issues		

2.6 Use Case # 6

Number	6	
Name	Edit Submission	
Summary	An admin edits a user submitted article.	
Priority	5	

Preconditions	The admin is logged in and is on the submission selection page.	
Postconditions	The system changes the attributes of the selected submission.	
Primary Actor	Admin	
Secondary Actors	Edit Submission Subsystem	
Trigger	The admin has opened the submission selection page.	
Main Scenario	Step	Action
	1	The admin opens the submission selection page.
	2	The admin enters the article's submission ID into the ID field and clicks the submit button.
	3	The system takes the admin to the submission edit page.
	4	The admin changes attributes of the submission using the provided fields and clicks submit.
Extensions	Step	Branching Action
	3a	The system fails to bring the admin to the edit submission page because the submission ID is invalid.
Open Issues		

2.7 Use Case # 7

Number	7	
Name	View Article	
Summary	A User views a summary page of a selected article.	
Priority	5	
Preconditions	The user is on the home page.	
Postconditions	The system presents a page to the user with the article and its summary, photo, and link.	
Primary Actor	User	
Secondary Actors	Article Display Subsystem	
Trigger	The user clicks on an article block on the home page.	
Main Scenario	Step	Action
	1	The user clicks on an article block.
	2	The system takes the user to the summary page.
Extensions	Step	Branching Action
Open Issues		

2.8 Use Case # 8

Number	8	
Name	Rate Article	

Summary	A user rates an article as "good" or "bad".	
Priority	5	
Preconditions	The user is logged in and on the home page.	
Postconditions	The system logs the user's rating of the article.	
Primary Actor	User	
Secondary Actors	Article Rating Subsystem	
Trigger	The user selects the "good" or "bad" array button below an article.	
Main Scenario	Step	Action
	1	The user selects a rating button below an article.
	2	The system logs the user's rating.
	3	The rating for the article is recalculated.
Extensions	Step	Branching Action
	1a	The user is not logged in and no rating buttons are present.
Open Issues		

2.9 Use Case # 9

Number	9	
Name	Editing Own Submissions	
Summary	A logged in User edits their	

	submissions.	
Priority	4	
Preconditions	The user is logged in and on the home page.	
Postconditions	The user is presented with a page that shows their submissions and provides the facilities to edit them. The system edits the submission as specified by the user.	
Primary Actor	User	
Secondary Actors	Edit Submission Subsystem	
Trigger	The user clicks on the Edit My Submissions button.	
Main Scenario	Step	Action
	1	The user clicks on the Edit My Submissions button.
	2	The system takes the user to the edit my submissions page.
	3	The user selects the submission they would like to edit.
	4	The system provides the facilities to edit the submission.
	5	The system saves the users changes to the submission.
Extensions	Step	Branching Action
	1a	The user is not logged in, therefore no edit my

		submissions button is present.
Open Issues		

2.10 Use Case # 10

Number	10	
Name	Viewing Own Submissions	
Summary	A user view their own submissions	
Priority	4	
Preconditions	The user is logged in and on the home page.	
Postconditions	The system presents to the user their history of submissions.	
Primary Actor	User	
Secondary Actors	Article Display Subsystem	
Trigger	The user selects the View My Submissions button.	
Main Scenario	Step	Action
	1	The user selects the View My Submissions button.
	2	The system takes the user to a page where they can view their submissions.
Extensions	Step	Branching Action
	1a	The user is not logged in and no View My Submissions button is present.

Open Issues		

Use Case Tests

2.1.1 Use Case Test # 1
Create A Personal Account

Open the account creation page, enter a username and password, and click the registration button. Verify that the account was created by checking for the appropriate notification, and by attempting a login with the same information.

Leave one or multiple fields blank on the account creation page and click the registration button. Verify that the account was not created by checking for the appropriate notification, and by analyzing the database.

2.2.1 Use Case Test # 2
Sign In To Personal Account

Open the login page, enter a username and password, and click the login button. Verify that you are now logged in to the system by checking for the appropriate indicator. Also check that you can now submit an article.

Leave one or multiple fields blank on the login page and click the login button. Verify that you are not logged in by checking for the appropriate indicator. Also check that you cannot submit an article.

2.3.1 Use Case Test # 3
Submit An Article

Open the article submission page, enter the appropriate information into the fields, and click the submission button. Verify that the submission was accepted by checking for the appropriate notification and by analyzing the database.

Leave one or multiple fields blank on the submission page and click the submission button. Verify that the submission was rejected by checking for the appropriate notification.

2.4.1 Use Case Test # 4

Search For Article

Open the home page, enter a search keyword into the search field, click submit. Verify that a results page is shown. Repeat with an empty search field. Verify that no results are shown.

Check database for a submission and note tag. Repeat above steps using that tag as the search keyword. Verify that the submission is shown on the results page.

2.5.1 Use Case Test # 5
Block Account

Sign in as admin, open block account page. Enter a valid username and select ban, click submit. Verify that user list shows user as banned. Repeat to unban and verify.

Repeat above steps with invalid username. Verify that error is shown and that user list shows no changes.

2.6.1 Use Case Test # 6
Edit Submission

Sign in as admin. Open submission selection page. Enter a valid submission ID and click submit. Verify that edit submission page opens with corresponding submission information in fields. On edit submission page, change multiple fields and click submit. Verify with database that submission attributes were changed.

Repeat above steps with invalid submission ID. Verify that edit submission page is not shown.

2.7.1 Use Case Test # 7
View Article

Open home page. Select any article block. Verify that you are taken to a page where the article's photo, summary, and link are shown.

2.8.1 Use Case Test # 8
Rate Article

Sign in as User. Locate any article block and select either the green arrow or the red arrow. Verify (perhaps on page refresh) that the rating has either increased or decreased for the article in response to your rating.

Sign out. Verify that no rating buttons are present.

2.9.1 Use Case Test # 9
Editing Own Submissions

Log in. Open home page. Select the Edit My Submissions button. Verify that the page for editing your submissions is present and appropriately populated.

Select a submission, change any fields. Save the changes. Verify that the submission fields have changed appropriately.

Log out.Open the home page. Verify that no Edit My Submissions button is present.

2.10.1 Use Case Test # 10
Viewing Own Submissions

Log in. Open home page. Select the View My Submissions button. Verify that the page for viewing your submissions is present and appropriately populated.

Log out.Open the home page. Verify that no View My Submissions button is present.

3. Nonfunctional Requirements

This section describes the constraints on the development of the system and the system itself.

Number	Priority	Description
1	5	The database is secure and not directly accessible by non-admin users.
2	4	The system will organize

		and present entries in a functional manner. Organization will benefit the user.
3	3	The system will be easily navigated by the user. Layout will be intuitive.
4	2	HTML and Javascript will be used to create the User Interface.
5	2	PHP will be used to process the back end.
6	2	SQL will be used to communicate with the database.

4. User Interface

Refer to the User Interface Design Document for detailed information about the 'RoboNews' user interface.

5. Deliverables

The following will be delivered to the customer:

Hard copies of each of the following:

- Systems Requirement Specification
- System Design Document
- User Interface Design Document
- User Manual
- Administrator Manual
- Copies of all bi-weekly Status Reports

A portable drive (or electronic copy in a ZIP file) containing the following:

- Systems Requirement Specification
- System Design Document
- User Interface Design Document
- User Manual
- Administrator Manual
- All source code
- The executable program
- Any other software required for installation and execution of the delivered program.

6. Open Issues

Listed are currently open issues concerning the system's requirements.

Issue	Plan
What constitutes an error for the various page fields? This includes the login page, the account creation page, and the article submission page. What should the system check for outside of empty fields?	This will be discussed later when the team further refines the specifics of each subsystem.
Must work out details for searching functionality. Will searching be case sensitive?	This will be decided upon during later user experience oriented testing.

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

Name (signature):   _____

Name (print):   _____

Date: _____

Name (signature):   _____

Name (print):   _____

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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):   _____

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Date: _____
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Appendix C – Document Contributions

This document was mainly created by Austin Duff. All group members assisted in reviewing and editing the document.