Digitized Engineering Notebook

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**ABSTRACT**

The GSURobotics.org is a Digitized Engineering web based application which will allow the students to upload projects details thru the website. Each team needs to create their account and can be able to create or edit their project details such as texts, images or even the team videos. It’s an annual robotics competition where in each team will be reviewed by a team of pioneers and awards will be facilitated to the team that shows creativity and innovation. The competition is completely online.

**Goals**

- Challenge students to apply skills in creative ways.
- Encourage participation by the public and private firms.
- Integrate technology and creativity skills.

It’s a new application which can provide the following:

- Competitions are open to all school clubs.
- Each team can submit as many projects as they want.
- There is no time limit for the projects.
- Projects will be ranked for their creativity, structure, and their functions.
- As per the project deadline the application will be released on April 17 2017.

**Methods or Algorithms:**

- GSURobotics.com is a rock-solid web application and easy to navigate, dynamic web application with multiple features. We have planned to implement this project by using ASP.net technology for the front end and to store the data in the backend we will be using SQL server. The front page will guide for the team registration. Once the registration is done then the student can upload their project with the project documents, videos and images.

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• **Project Description**

GSU Robotics is a forum, which is directly owned and managed by Governor State University. The GSURobotics.org is a Digitized Engineering web based application which will allow the students to upload projects details thru the website. Each team needs to create their account and can be able to create or edit their project details such as texts, images or even the team videos. It’s an annual robotics competition where in each team will be reviewed by a team of pioneers and awards will be facilitated to the team that shows creativity and innovation. The competition is completely online.

The basic rules to participate in GSU Robotics competition:

- Team’s participating in the robotics competition, must create a login account and after email conformation from ADMIN they can upload documents, Images and video clips related to robotics project.

- Participating team should be associated with school district in USA

- Team members can be from middle school or High school.

- Registered team can use discussion board.

- School can register one team annually to represent their school in GSU Robotics competition.

- Team members can access their login account and can upload documents, Images and video clips related to project at any time of year.

- Winning team will be decided by panel of judges from Governor State University after review all project files and that will final decision.
• **Competitive Information**

One of the competitor for our product is nvrobotics.org it’s a website which provides the same feature as our project but the thing in our project is we made it simple to use and added so many features to it to make it look good.

• **Relationship to Other Applications/Projects**

As we all know that GSURobotics.org is a project developed by governors state university students and this project deals with online competitions which are going now a day’s to help student to upload their project related details such as images, videos or browse any calendar event to attend event or even the team members can post their comments or discussion post or reply to the discussion these are all the features which we add to our project to make it look and feel good and help students to work as a team.

• **Assumptions and Dependencies**

The following are the list of functionalities which this project should include but not limited to the listed below:

- A front page with welcome message and a menu for navigation
- Admin console for site administration
- Option to create a new project or select an existing project
- Add team members to project
- Table of content (or log index)
- Creation of dated log entries for ideas, details, observations, etc.
- Chronological listing of log entries
- File upload for text documents, drawings, sketches, figures, etc.
- Allow multimedia elements such as pictures and videos embedded in Web pages
- Search and listings
- Calendar of events
- Discussion board
• Printing of log
• Creation of PDF version of log

**Future Enhancements**

As of now the scoop of the project involves teams from only country and if GSUrobotics.org plans to add more functionality and go globally for the same concept the future enhancement will be done using SharePoint 2013/2016.

• **Definitions and Acronyms**

HTML: Hyper Text Markup Language
CSS: Cascading style sheet
J Query: Java Query
ASP: Active Server Page
SP SharePoint

• **Project Technical Description**

GSURobotics.com is a rock-solid web application and easy to navigate, dynamic web application with multiple features. We have planned to implement this project by using ASP.net technology for the front end and to store the data in the backend we will be using SQL server. The front page will guide for the team registration. Once the registration is done then the student can upload their project with the project documents, videos and images.

Below are few of the Project specification are listed :

• HTML, CSS, Bootstrap
• We will be using programming languages C# for this project.
• Database creation and programming
• User authentication & authorization
• Site navigation, data validations
• Integration of WYSIWYG HTML editor to Web site
• Converting HTML to PDF

• Application Architecture

As per the above diagram, the flow of the project is described below:
• First, the user needs to register to the web application REGISTRATION PORTAL or Page.
• Once, he fills up the form and submits, the admin of the web application will be notified.
• Now the Admin must either “ACCEPT” or “REJECT” the user application
• Once the Admin accepts the request, user will be provided with the credentials to login to the web application.
• After, the user can view a his/her own User Dashboard created.
• Using this dashboard, User can able to create a new project or he can also modify any existing project as per his/her requirement.
• Now, the user can create, discussion forum, can create team, can add team members too.
• Members too can comment on the project.
• Members are provided with a facility to download the project as PDF and print the contents as well.
• Apart from all the activities, Admin will have a monitoring on USERs activity starting from creation of project till the download function.
• **Application Information flows**

![Application Information flows diagram]

- **Interactions with other Projects (if Any)**
  This web application doesn’t have any interaction towards any other projects.

- **Interactions with other Applications**
  As it’s a web application currently it doesn’t have any interaction with any other web applications.

- **Capabilities**
  For our application, we need a backend database connectivity for which we are using SQL Server, as this is a web application wherein it uses store and retrieve procedure so to store or retrieve the data we need the database. Visual studio is the tool which is required as front end in order to develop our front page.
• **Risk Assessment and Management**

For our application, there might be some risk with user credential wherein if someone gets the credential of a user then they can easily access to the site. So, in order to make sure the credential of any user is not stored or saved we didn’t provide and automatically login feature to store there information and will close the application after certain time period, which will provide a security feature.

• **Project Requirements**

• **Identification of Requirements**

In this project, we have utilized "SMART" criteria to write the requirements. Below is the detailed description of the SMART criteria.

• **Specific** – target a specific area for improvement.
• **Measurable** – quantify or at least suggest an indicator of progress.
• **Achievable** – specify what will be accomplished
• **Realistic** – state what results can realistically be achieved, given available resources.
• **Time-related** – specify when the result(s) can be achieved.

<GSU-ROBOTICS_SP2017-1 User-Approval-01>

• The Web Application will allow the basic operation such as Registering Team Members.

• Request can be approved or denied by Admin.

• The following request will be updated in the Admin Console Panel.

<GSU-ROBOTICS_SP2017-2 Upload Project-02>

• This Web Application will allow the CRUD operations.

• A User will be able to upload clips.

• **Operations, Administration, Maintenance and Provisioning (OAM&P)**

Continuous automatic backup is enabled for our application and the data can be easily recovered by using the recovery tools.
Database administrator is responsible to take continuous backup and recover the database in case if it needs any recovery. Maintenance is very much important so there is 24/7 maintenance support for the application.

- **Security and Fraud Prevention**

For any web application, the most important thing that needs to be consider is security. Now a days security is main concern for any project so we have a feature that it will terminate the page after certain period of time.

- **Release and Transition Plan**

This project is simple to run so the user machine should have visual studio 2012 and sql server running. Start the application using web application through visual studio by selecting the browser and they’re after user is ready to go by providing all the credential or by registering.

- Project design description

Use case diagram:
• Admin

- AdminDetails
  - First Name
  - Middle Name (O)
  - Last Name
  - Gender
  - Mobile Number
  - Email ID
  - Password
  - Is Active
User:

UserDetails

- First Name
- Middle Name (O)
- Last Name
- Gender
- Qualification
- Mobile Number
- Email ID
- Password
- Is Active
Event calendar:

- Planned Date
- Event Name
- Specification
- Speaker
- Agenda

Project:

- Project Name
- Project Description
- Project Start Date
- Project Document
- Project Technology
• Team:

Table diagrams:
Add project:
Event:

Join team:
Reviews:

Discussion:
•  **Internal/external Interface Impacts and Specification**

In this section the external interface for the database will be for the user where he will access it through a web application and will be restricted to use only as a user access. The internal interface will be used by the admin or the manager where he will be given control to add, update, delete the project. This will have a great impact on the data structure as it will be helpful in segregating the users, other admins, projects and other team.

•  **Design Units Impacts**

Team Members: Each project will have more than member in the team so there should be more than 3 members in the team.

Upload Project: Project upload is mandatory wherein he needs upload his complete project which is important.

Delete Project: Project can be edited and even deleted easily by using edit or delete button.

•  **Functional Area A/Design UnitA**

•  **Functional Overview**

For our project we have admin functionality and user functionality which is discussed below.

•  **Impacts**

Team Members: Each team can accommodate 6 team members after registration. Teams can add more team members once registration process is approved.

Upload Project: Project upload is mandatory wherein teams needs upload there complete project files with all documentary details.

Delete Project: Project can be edited and even deleted easily by using edit or delete button.

•  **Requirements**

**ADMIN FUNCTIONALITY.**

Requirement Number 1: Login: It will allow the administrator to login into the system, Administrator needs to provide/enter his/her Email ID and password to enter in the portal.
Requirement Number 2: Dashboard Appearance:
The name of the administrator will be appeared on the left side of the page with a list of drop down items and navigation Menu in order to work on other Functionalities.

Requirement Number 3. Manage User: In this feature the navigating panel there are three things listed first one is user list it contains list of registered user's in the portal. And second one focuses on Adding a user which will allow the administrator to give permission and add a specific user. In third one Edit user where all type of information about user can be modify.

Requirement Number 4: Manage Team: In the Manage team section this will allow Adding a team and Editing the team information. Other various things involved in this section is Adding team member to a specific team. The other one is team involved list which will give list of teams and team member names.

Requirement Number 5: Manage Event: In this feature the navigation panel it will allow to Add Event and to display the event list. The event list will view the list of all events which is going to occur.

Requirement Number 6: Requests: This section focuses on the users who has requested the administrator to login in the system. The user request list will display the list of user's who is asking for access to the system.

Requirement Number 7: Approves: This feature works on the approval section it will list the users who has been approved by the Administrator.

Requirement Number 8: Monitor's: In the monitor's it contains project review list and discussion forums. Project review list will have the information about the users has given reviews for the project. In the discussion forum where n number of users are having their opinion on the projects.

Requirement Number 9: Log out: In this section where the Administrator log out from the system.
• **Functional Area B/Design Unit B**

• **Functional Overview**

User Functionalities:

Requirement Number 1 Projects: Once a user logs into the portal there is a drop-down list of various things. In that first one is project this will allow the user to create or Add the Project by providing the project details. And moving on other is project list by selecting a year a user can able to view the year wise project's which was uploaded by existing user's. Download project option will allow to download the projects of other users who has uploaded in the system.

Requirement Number 2: Teams: In the team’s section, we have two drop down items get involved and about Team. In Get involved a user can participate in a Team which his/her likes. In About Team by selecting a team this will give whole information about a team like how many members are involved and what type of technology is used Etc...;

Requirement Number 3: Calendar: Internet Event calendar it will display the upcoming Events which is going to happen.

• **Impacts**

Team Members: Each project will have more than member in the team so there should be more than 3 members in the team.

Upload Project: Project upload is mandatory wherein he needs upload his complete project which is important.

Delete Project: Project can be edited and even deleted easily by using edit or delete button

• **Requirements**

Requirement Number 4: Discussion Forums: In this feature by selecting a year the users can able to have discussion on various topics of projects. Users can able to have their opinion and feedbacks to another user's.

Requirement Number 5: Reviews: In Reviews drop down list we have Add review, project reviews. In Add review a user can able to provide a feedback for the specific project. In the project Reviews by a selecting a project the user check the reviews of other projects
• **Open Issues**

Database has a security related to protecting the database from the unauthorized user like maintaining the user id and password and maintaining session expiration also important.

• **Acknowledgements**

We sincerely thanks to Prof. D. Park for supporting us in developing this project and sharing his wonderful experience and knowledge in our project (GSURobotics.org) who help us in exploring the database system and my teammates that shares their knowledge in development of this project.

• **References**

Prof D. Park helped us in achieving this project successfully.

http://www.nvrobotics.org/

http://www.robotart.org

http://www.asp.net/

http://msdn.microsoft.com/
• List of Appendix, Tables and Figures

USER INTERFACE:

USER PAGE:

REGISTRATION

USER LOGIN:
USER DASHBOARD:

PROJECT: ADD PROJECT
TEAM : ABOUT TEAM

TEAM: GET INVOLVED
CALENDAR: EVENT LIST

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DISCUSSION FORUM: START DISCUSSION
REVIEW: PROJECT REVIEW

USER: EDIT PROFILE
USER: UPDATE PASSWORD

ADMIN: LOGIN PAGE
ADMIN: DASHBOARD

MANAGE ADMIN: ADMIN LIST
MANAGE ADMIN: ADD NEW ADMIN

MANAGE ADMIN: EDIT ADMIN
MANAGE USER: USER LIST

MANAGE USER: ADD USER
### EDIT ADMIN

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<tr>
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<tr>
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<td>6308638565</td>
<td>mferoz@y3s</td>
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### USER LIST

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MANAGE TEAM: ADD TEAM

MANAGE TEAM: EDIT TEAM

MANAGE TEAM: GET INVOLVED
MANAGE TEAM: TEAM INVOLVED LIST

MANAGE EVENT: ADD EVENT:
Manage Event: Event List

User Request: User Requested List
APPROVES: USER APPROVAL LIST

MONITORS: PROJECT REVIEW LIST