Intranet Solutions for PG School IARI

Project Brief

1. Project Profile Summary

The PG School, IARI Software Development Committee requested the automation of its administrative activities. This project aims to develop software for day to day activities of the PG school. The software will be based on Intranet technologies and will be accessible from the desktops of the students, faculty members and administrative officials in different disciplines under the P.G. School, IARI. The development of the software will begin with meetings with officials of P.G. School, IARI. Based on the interaction, a System Requirement Specification (SRS) document will be prepared. Thereafter the Intranet solutions will be designed. The design will include the development of database, forms, reports and navigation. The coding for various modules will be taken up. The functionality of each module will then be tested thoroughly. The Intranet solutions, so developed will initially be tested at IASRI. On successful completion of testing of each intranet solution, they will be deployed and implemented at IARI. The system will then be maintained and its capability will be improved according to feedback.

2 Introduction and objectives

2.1 Origin of the Project (Problem identification)

PG School, IARI is a deemed University. It has 25 disciplines in which masters and doctorate degrees are awarded. These include Genetics, Horticulture, Seed Science Technology, Plant Genetics Resources, Post Harvest Technology, Molecular biology & Biotechnology, Plant Physiology, Biochemistry, Microbiology, Agronomy, Soil Science and Agricultural Chemistry, Agricultural Physics, Environmental Sciences, Water Science and Technology, Agricultural Engineering, Plant Pathology, Entomology, Nematology, Agricultural Chemicals, Agricultural Economics, Agricultural Extension, Agricultural Statistics and Computer Application. These disciplines are physically situated in different buildings that are spread across the Pusa Campus covering different institutes under ICAR such as IARI, IASRI, and NBPGR. With the advances in the Internet technologies and the available network infrastructure, the working of PG School can be automated and an online system can be developed. The PG School, IARI Software Development Committee has also identified the problem. The online capability of the system will allow the students, faculty members and administrators to publish and retrieve the information from their respective disciplines. This would definitely help the users of the system save their time and efforts. The time so saved may be utilized for other development activities of the PG School, scientific research and better education.

2.2 Immediate objectives

- To perform the requirement analysis of P.G. School, IARI for Intranet Solutions.
- To design and develop the Intranet Solutions.
- To test and implement the Intranet Solutions
- To impart training for sensitization of the system.

2.3 Long-term objectives

To automate the working of P.G. School, IARI and thereby developing the capability to automate the education system of other deemed universities under ICAR and agricultural universities.

3 Project Technical Profile

Organization of Work Elements (For each objective and Investigator no of weeks involved)

Activity No.	Activity	PI	A1	A2
	Activities for Objective 1 To perform the requirement analysis of P.G. School, IARI for Intranet Solutions			
1	Studying the Green Book and meetings with officials of P.G. School, IARI	2	1	0
2	Evaluation of existing web based systems for university management and e-learning.	2	1	0
3	Preparation of System Requirement Specification (SRS) cum Design document.	2	2	1
4	Approval and modification of System Requirement Specification document	1	1	1
	Activities for Objective 2 To design and develop the Intranet Solutions			
5	Designing of various Intranet Solutions according to SRS	2	1	0
6	Designing of database schema for Intranet Solutions	2	1	0
7	Designing of website including navigation flow, form designing, and report designing.	4	2	0
8	Developing the intranet solutions module wise with online help.	6	2	5
9	Integrating different intranet solutions.	2	2	2
10	Data Entry for testing purpose.	0	2	5
	Activities for Objective 3 To test and implement the Intranet Solutions			
11	Testing different forms, reports and database queries for consistency	2	4	4
12	Test implementation at IASRI for each of the intranet solution	2	3	4
13	Implementation at IARI	2	3	4
	Activities for Objective 4 To impart training for sensitization and implementation of the system			
14	Organisation of training workshops for Users/Students /Professors/Administrative Staff	3	3	3
15	Report writing	2	3	2
	Total (Weeks)	34	31	31

Man Month for PI   = 34 weeks   = 7.9 man months
Man Month for Co-PI(A1) = 31 weeks   = 7.48 man months

Man Month for Co-PI(A2)   = 31 weeks   = 7.48 man months
Man month for Technical (Each 29 weeks = 7 man months) = 7x2 =14 man months

3.1 Methodology

Following Methodology will be followed :

- The important modules for PG School software will be identified in consultation with stakeholders of various disciplines of PG School, IARI and also by conducting meetings with the PG School officials.

- Parameters of interest for the software will be finalized and modules and reports will be identified.

- The result of the above meetings will be transformed into the Software Requirement cum Design Document and will be presented to stakeholders for the approval.

- Three tier web architecture will be followed.

  1. User Interface

  User Interface will be implemented in HTML (Hypertext Markup Language), JavaScript and CSS (Cascaded Style Sheets). It will contain forms for interacting with the user and reports for retrieving information. The interface will also allow user friendly navigation.

  2. Application Logic Layer

  In practice, the complicated part of creating a web based system is getting the information into the database. Once the information has been stored, it is relatively straightforward to search and manipulate using standard database techniques.

  In the present study Application Logic Layer will be implemented in one of the existing technologies like Java Server Pages, PHP or ASP.NET. Its purpose will be:

    - To provide linkage and data transfer to and from the User Interface.
    - To hide all the complex application logic and between the user interface and database
    - To implement all the data transfer and transformation required.

  3. Database Layer

  The database will be stored in form of a relational database. The database layer provides the necessary tables for storing the data along with the relationship between them. Suitable RDBMS software like MS SQL server, or My SQL will be used for implementing this layer.

- The necessary algorithms and solutions for their creations will be developed.

- The test information will be collected and fed into the database.

- The modules so developed will be integrated with the system.

- The system will first be tested at IASRI server and thereafter on various IARI PG School Disciplines wherever feasible.

- The feedback during different stages of the development of software will be taken and incorporated.

- When the product is approved from all corners, it will be released.

Initially, IASRI resources will be used but later on the latest computers, servers, laser printers, and scanners will be procured/purchased and utilized.

3.2 Plan of Action

Activity No.	Action
	To perform the requirement analysis of P.G. School, IARI for Intranet Solutions
1	Studying the Green Book and meetings with officials of P.G. School, IARI
2	Evaluation of existing web based systems for university management and e-learning
3	Preparation of System Requirement Specification (SRS) cum Design document.
4	Approval and modification of Requirement Analysis document
	To design and develop the Intranet Solutions
5	Designing of various Intranet Solutions according to SRS
6	Designing of database schema for Intranet Solutions
7	Designing of website including navigation flow, form designing, and report designing.
8	Developing the intranet solutions module wise with online help.
9	Integrating different intranet solutions
10	Data Entry for testing purpose
	To test and implement the Intranet Solutions
11	Testing different forms, reports and database queries for consistency
12	Test implementation at IASRI for each of the intranet solution
13	Implementation at IARI.
	To impart training for sensitization and implementation of the system
14	Organisation of training workshops for Users/Students/Professors/Administrative Staff
15	Report writing

3.3   Time Schedule of Activities (Milestones)

S.No.	Activity	Symbol	Preceding Activity	Total Duration	Scientist Involved
	Activities for Objective 1 To perform the requirement analysis of P.G. School, IARI for Intranet Solutions				
1	Studying the Green Book or meetings with officials of P.G. School, IARI	A		4 Weeks	PI , A1
2	Evaluation of existing web based systems for university management and e-learning	B	A	4 Weeks	PI , A1
3	Preparation of System Requirement Specification (SRS) cum Design document.	C	B	8 Weeks	PI , A1 , A2
4	Approval and modification of Requirement Analysis document	D	C	2 Weeks	PI , A1 , A2
	Activities for Objective 2 To design and develop the Intranet Solutions.				
5	Designing of various Intranet Solutions according to SRS	E	D	4 Weeks	PI , A1
6	Designing of database schema for Intranet Solutions	F	D	8 Weeks	PI , A1
7	Designing of website including navigation flow, form designing, and report designing	G	D	8 Weeks	PI , A1
8	Developing the intranet solutions module wise with online help.	H	G	20 Weeks	PI , A1 , A2
9	Integrating different intranet solutions	I	H	10 Weeks	PI , A1 , A2
10	Data Entry for testing purpose	J	G	4 Weeks	PI , A1 , A2
	Activities for Objective 3 To test and implement the Intranet Solutions				
11	Testing different forms, reports and database queries for consistency	K	I	8 Weeks	PI , A1 , A2
12	Test implementation at IASRI for each of the intranet solution	L	K	6 Weeks	PI , A1 , A2
13	Implementation at IARI.	M	L	4 Weeks	PI , A1 , A2
	Activities for Objective 4 To impart training for sensitization and implementation of the system				
14	Organisation of training workshops for Users/Students/ Professors/Administrative Staff	N	M	6 Weeks	PI , A1 , A2
15	Report writing	Q	P	8 weeks	PI , A1 , A2
	Total (Project Duration)			104 eks	

3.4 Annual Targets for Each Activity

S. No.	Activities	Year 1				Year 2			
		I	II	III	IV	I	II	III	IV
1	Studying the Green Book and meetings with officials of P.G. School, IARI	*							
2	Evaluation of existing web based systems for university management and e-learning	*							
3	Preparation of System Requirement Specification (SRS) cum Design document.	*	*						
4	Approval and modification of System Requirement Specification (SRS) document		*						
5	Designing of various Intranet Solutions according to SRS		*	*					
6	Designing of database schema for Intranet Solutions		*	*					
7	Designing of website including navigation flow, form designing, and report designing.		*	*					
8	Developing the intranet solutions module wise with online help.			*	*	*	*		
9	Integrating different intranet solutions						*		
10	Data Entry for testing purpose					*	*	*	
11	Testing different forms, reports and database queries for consistency						*	*	
12	Test implementation at IASRI for each of the intranet solution							*	*
13	Implementation at IARI							*	*
14	Organisation of training workshops for Users/Students/Professors/Administrative Staff							*	*
15	Report writing								*

FIRST YEAR

Activity No.	Activity	Total Duration
	Activities for Objective 1	
1	Studying the Green Book or meetings with officials of P.G. School, IARI	4 Weeks
2	Evaluation of existing web based systems for university management and e-learning	4 Weeks
3	Preparation of System Requirement Specification (SRS) cum Design document.	8 Weeks
4	Approval and modification of Requirement Analysis document	2 Weeks
	Activities for Objective 2	

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5	Designing of various Intranet Solutions according to SRS	4 Weeks
6	Designing of database schema for Intranet Solutions	8 Weeks
7	Designing of website including navigation flow, form designing, and report designing	8 Weeks
8	Developing the intranet solutions module wise with online help.	10 Weeks

SECOND YEAR

Activity No.	Activity	Total Duration
	Activities for Objective 2	
8	Developing the intranet solutions module wise with online help.	10 Weeks
9	Integrating different intranet solutions	10 Weeks
10	Data Entry for testing purpose	4 Weeks
	Activities for Objective 3	
11	Testing different forms, reports and database queries for consistency	8 Weeks
12	Test implementation at IASRI for each of the intranet solution	6 Weeks
13	Implementation at IARI	4 Weeks
	Activities for Objective 4	
14	Organisation of training workshop for Users/Students/Professors /Administrative Staff	6 Weeks
17	Report writing	8 Weeks

3.5 Proposed Research Details

3.5.1 Importance of the Proposed Project (gaps in knowledge/ products/ process technology) to the Institute mandate

The present system for PG School activities involves manual processing of various activities and is not online. As the divisions of PG School are physically scattered, a lot of time is wasted and also require additional paper work. One has to contact the concerned offices and disciplines of PG School to get or submit a piece of information. The collection and dissemination of information is not readily available easily. Therefore, development of intranet solutions for PG school is need of the hour to strengthen the education system. The software will try to improve the efficiency of the system and will save precious time and resources of students, faculty members and officials. It will also help in bringing out result of the examination in timely manner and inculcate more transparency in the system. The software will provide information on a click of a mouse through desktop computers of the users.

3.5.2 Anticipated Process/ Products/ Technology/Knowledge expected to be Evolved by Pursuing the Project

The system will have following deliverables

- Database containing information about
    o Students, faculty members, and officials
    o Courses with their syllabus

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o Research areas of students and faculty members

- Dynamic Website having forms and reports from the database

- Refined Process (compared to operational now) for different activities of PG School.

3.5.3 Practical Utility of Anticipated Results of the Project

a. Immediate benefits.

The various developed modules will be accessible by the faculty members, students, and officials of PG School. They will be able to communicate with the developed system for various activities of the school.

b. Medium term benefits

The methodology applied and tested will work as a base and be available for development of other similar systems.

c. Long-term benefits

The expertise and capability obtained from the proposed PG School System will be utilized for automation of the education system of other deemed universities under ICAR and agricultural universities.

3.6 Expertise Available with Investigatory Group/ Institute

The Investigatory Group/Institute is conversant with the latest information technology. They have the knowledge and experience in the development of various online systems such as PIMSNET, Expert System of Extension, NISAGENET, PERMISNET, INARIS and Expert System on Wheat Crop Management. All the systems are functional, evaluated and tested thoroughly by the subject matter specialists.