



Capstone Project Progress Journal 2024

**DEPARTMENT OF COMPUTING AND
INFORMATION SYSTEMS
FACULTY OF COMPUTING
SABARAGAMUWA UNIVERSITY OF SRI LANKA**

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Introduction to Capstone Projects

Overview

Capstone Project (IS 4110) is a compulsory course module to complete the Bachelor of Science Honours Degree Programme in Information Systems offered by the Department of Computing and Information Systems (DCIS), Faculty of Computing, Sabaragamuwa University of Sri Lanka. Every Student should have to complete this Capstone Project in their Semester V as an individual project. This course will enable students to carry out a project work to implement a solution for real world IT problem, under the supervision of an internal supervisor and a mentor provided by the Department. The Internal Supervisor are responsible to help students if they have any internal matters and they should monitor the interaction between the students and mentors and evaluate the progress of the students. The mentors should aware the students about the emerging technologies and current trends in the Software Industry and guide the students to apply those technologies with their projects. Also Mentors should monitor the progress of the student continuously and all the students are required to submit a Project Progress Journal once in three weeks to the mentor and the Internal Supervisor. Mentors and Internal Supervisors can schedule meetings with the students to assess the progress as well as to discuss about the project work. A student is responsible to update the progress of the project and address the feedbacks given by the mentors throughout the semester and complete the final software product before the end of the semester by covering all the requirements and the scope defined initially. The Capstone Project is evaluated by the internal supervisors and a same panel of evaluators in the Proposal Presentation, Prototype Demonstration I, and in the Final Evaluation.

The duration for the Capstone Project is 15 Weeks (One Semester) and it weighted 2 credits. Upon successful completion of this course, the student will be able to identify the requirements for the real-world IT problems, study & enhance software/ hardware skills, demonstrate & build the project successfully by hardware requirements, coding and emulating & testing Report & present the findings of the study conducted in the preferred domain.

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Vision

Our vision is to guide the Computing and Information Systems (CIS) Students to achieve their individual goals and to lead the next generation of IT professionals in advancing Information Technology and Business Process Management (IT/BPM) industry.

Mission

Our mission is to produce computing graduates to design and develop quality software solutions, work effectively within challenging environments and being good professionals. Since the field of computing has rapidly grown and diversified, we have to create computing graduates who is with high-quality standards, broad-based education and experiential learning in computing, create knowledge through pioneering scholarship and impactful research, enrich our students' development and leadership skills, and nurture the inherent innovation of our students.

Objectives

Objectives of the Capstone Project work:

- Offer students a glimpse into real world problems and challenges that need IT based solutions
- Enable students to create very precise specifications of the IT solution to be designed.
- Introduce students to the vast array of literature available of the various research challenges in the field of IT
- Create awareness among the students of the characteristics of several domain areas where IT can be effectively used.
- Enable students to use all concepts of IT in creating a solution for a problem
- Improve the team building, communication and management skills of the students.
- Helps in exploring career opportunities in their areas of interest.
- Gives an insight into the working of the real organizations/companies.
- Develop students' ability to apply knowledge and techniques learnt in theoretical classes to develop software products for real world problems.
- Gives an insight of a real working environment of an organization to the students
- Assist students in exploring career opportunities in their areas of interest.
- Develop students' reporting, presenting and demonstrating ability.

Intended Learning Outcomes

Upon successful completion of this course, the student will be able to:

- ILO1 Discover potential research/Development areas in the field of IT
- ILO2 Conduct a survey of several available literature in the preferred field of study.
- ILO3 Compare and contrast the several existing solutions for research/development challenge
- ILO4 Demonstrate an ability to work in teams and manage the conduct of the research study or Development project
- ILO5 Formulate and propose a plan for creating a solution for the research/development plan identified
- ILO6 To report and present the findings of the study conducted in the preferred domain

Introduction to Capstone Project Progress Journal

Capstone Project Progress Journal is

- A way to document all Capstone project activities throughout the semester.
- An important mechanism for the internal supervisors and mentor to evaluate and assess a student's attitude and ability and also to monitor the status of the student's project throughout the semester.

Students are

- Required to write clearly and honestly all activities performed and then to summarize their work every week.
- Highly encourage to maintain a separate file/folder to compile all their findings/ printouts/ datasheets as a complement to this progress journal.

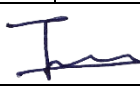
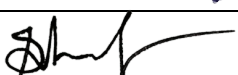
Reminder to students

- This journal must be presented to your Mentor and the Internal Supervisor once in three weeks.
- All activities conducted must be recorded at the activities section in the Project Progress Journal. Signatures of relevant persons can also be recorded as proof of your claim at the activities section (optional but highly recommended).
- This journal must be submitted to your internal supervisor and mentor along with your Final Report to be graded by your internal supervisor and the mentor at the required date (Refer to Capstone Project Guidelines).


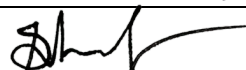
Student Information

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Mentors' Details	Name	Mr. P L R H Shanilka
	Profession	Senior Software Engineer, Pronto Software Ltd.
	Contact Details	Email : shanilkaliyanage9@gmail.com Phone : 0774957017
Mentors' Details	Name	
	Profession	
	Contact Details	
Project Title	EcoBin - Smart Garbage Management System	
Project Description	<p>EcoBin-Smart Garbage Management System is an IoT based innovative solution aimed at revolutionizing waste management practices. EcoBin mainly provides real-time monitoring of garbage bin fill levels, optimizing waste collection routes and reducing operational costs. Reduce operational costs by up to 30% with optimized routes based on real-time waste bin fill level data. The primary objective of developing the EcoBin system is to properly classify the waste collected in any organization or area and contribute to efficient waste management. It minimizes unnecessary pickups, saving fuel and manpower. The proposed system accessible via a mobile app and website, allowing municipalities and businesses to efficiently manage waste disposal. EcoBin uses intelligent alerts to notify authorities and users when bin capacity is reached, ensuring timely and optimal waste removal.</p>	



Week 1

Duration	Start Date	12.02.2024	End Date	18.02.2024
Date	Task Completed	Objectives of the tasks	Problems	Solutions
12.02.2024	Scheduled a meeting with members of project group.	Get a clear idea about how to create project proposal and other tasks of the project.	How to plan the project tasks.	Divide the task within the group members in the meeting.
13.02.2024	Collected required details and other requirements to create the project proposal.	Learn about how to create a professional project proposal.	None.	None.
14.02.2024	Submitted the initial version of the project proposal.	Submission of the 1 st initial version of the project proposal.	None.	None.
15.02.2024	Scheduled a meeting with the mentor.	Discussed about the project and new industrial updates related to the project.	None.	None.
16.02.2024	Completed the project proposal based on further issues given by the mentor.	Create a professional project proposal.	None.	None.
17.02.2024	Created the presentation of the capstone project.	Submit an errorless project proposal.	None.	None.
18.02.2024	Recorded the video of the above-mentioned presentation.	Introduce the objectives of the project proposal.	None.	None.
Summary for the week	Created and tried to complete a well-organized and professional project proposal.	Create a professional project proposal.	None.	None.
Task for the next week	Submit the completed project proposal.	Submission of the completed project proposal.	None.	None.
Remarks				
Signature of the Student			Date	28.03.2024
Signature of the Mentor			Date	29.04.2024



Week 2

Duration	Start Date	19.02.2024	End Date	25.02.2024
Date	Task Completed	Objectives of the tasks	Problems	Solutions
19.02.2024	Submitted the completed Capstone Project proposal and the recorded presentation video.	Submission of the completed project proposal and recorded presentation video.	None.	None.
20.02.2024	Took a meeting with the mentor.	Get more ideas about future plan of the project.	We needed a resource person to get a clear understanding of our project.	Our mentor contacted a resource person who had done a similar project.
21.02.2024	Discussed the project progress with the group members according to the ideas of the resource person.	Get a better idea about our project among the group members.	None.	None.
22.02.2024	Plan the project scope and choose the suitable technologies.	Choose better and fixed technologies with our project.	Find out best technologies.	Refer YouTube videos and related contents.
23.02.2024	Discussed and shared the future work of the project among the group members.	Plan and manage the work load of the project development.	How can we divide the future work of the project.	Discussed and divide the work among members.
24.02.2024	Referred related technologies and get basic idea about those technologies.	To choose better technologies for project.	What are the suitable technologies we should use.	Refer YouTube video for study more about those technologies.
25.02.2024	Referred related technologies and get basic idea about those technologies.	To choose better technologies for project.	None.	None.
Summary for the week	Submitted the completed project proposal and learned suitable technologies that are fixed with our project.	Learn about suitable technologies fixed with the project.	None.	None.
Task for the next week	Get the basic idea and knowledge about UI/UX design.	Develop a user-friendly interface.	None.	None.
Remarks				
Signature of the Student			Date	28.03.2024
Signature of the Mentor			Date	29.04.2024



Week 3

Duration	Start Date	26.02.2024	End Date	03.03.2024
Date	Task Completed	Objectives of the tasks	Problems	Solutions
26.02.2024	Referred Arduino tutorials: video no. 01	Learn Basics About Arduino.	None.	None.
27.02.2024	Referred to the Arduino tutorials: video no. 02	Learn About Arduino Boards.	None.	None.
28.02.2024	Referred to the Arduino tutorials: video no. 03	Learn About Arduino Sensors.	Hard to wiring with sensors and Boards.	Refer related videos to overcome the problem faced.
29.02.2024	Referred to the Arduino tutorials: video no. 04	Create Basic Circuit with Arduino.	None.	None.
01.03.2024	Scheduled a meeting with the group members.	Share the Basics And Diagrams.	None.	None.
02.03.2024	Design Some Basic Components of Device.	Some Basic Components of Device	Hard Find Some Sensors.	Contact Senior Brothers and get their advice.
03.03.2024	Took a meeting with the mentor.	Identifying the Changes and change them.		
Summary for the week	Referred to the Arduino tutorials.	Code with Arduino IDE and Finished some Basic Components.	None.	None.
Task for the next week	Start to write Basic code with Arduino IDE.	Create Basic Components of IOT Device	None.	None.
Remarks				
Signature of the Student			Date	29.03.2024
Signature of the Mentor			Date	29.04.2024


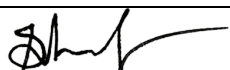
Week 4

Duration	Start Date	04.03.2024	End Date	10.03.2024
Date	Task Completed	Objectives of the tasks	Problems	Solutions
04.03.2024	Referred Arduino tutorials.	Connect components all together.	None.	None.
05.03.2024	Referred Arduino Official Website.	Learn How work Sensors.	None.	None.
06.03.2024	Referred Arduino Official Website.	Learn how couple some Arduino Uno Board together.	None.	None.
07.03.2024	Referred Arduino tutorials.	Learn About Arduino pro mini-Board.	None.	None.
08.03.2024	Referred Arduino tutorials.	Learn About coding Arduino pro mini-Board Using Uno Board.	Issue with Upload code to Arduino pro mini-Board.	Use Arduino Official Site Community and find answer chat with experts
09.03.2024	Referred Arduino tutorials.	Upload the code to Arduino pro mini-Board.	None.	None.
10.03.2024	Referred Arduino Official Website.	Learn use mini board effectively.	None.	None.
Summary for the week	Referred Arduino Official Website.	Design components work with uno and mini board.	None.	None.
Task for the next week	Learn About Fire base working with Arduino.	Find the tutorials and YouTube channels to learn.	None.	None.
Remarks				
Signature of the Student			Date	01.04.2024
Signature of the Mentor			Date	29.04.2024



Week 5

Duration	Start Date	11.03.2024	End Date	17.03.2024
Date	Task Completed	Objectives of the tasks	Problems	Solutions
11.03.2024	Referred Arduino & Firebase tutorials	Learn Basic About Fire Base.	None.	None.
12.03.2024	Referred Arduino & Firebase tutorials	How to connect firebase with Arduino.	Haven't a Wi-Fi module.	Buy a Wi-Fi module
13.03.2024	Referred Arduino & Firebase tutorials	Learn about Arduino libraries.	None.	None.
14.03.2024	Referred Arduino & Firebase tutorials	Install libraries to Arduino.	None.	None.
15.03.2024	Referred Arduino & Firebase tutorials	Start coding with using Wi-Fi module	None.	None.
16.03.2024	Referred Arduino & Firebase tutorials	Create more user-friendly UI for the mobile application.		
17.03.2024	Took a meeting with the mentor.	Discuss the further progress and problems had to face.		
Summary for the week	Referred Arduino & Firebase tutorials	Try to send data Arduino board signals to Firebase.	Haven't Proximity and inductive sensors	Online Order the sensors and stop the device developing and join to the web site crate part.
Task for the next week	Create website frontend.	Refer tutorials and learn about React js.		
Remarks				
Signature of the Student			Date	02.04.2024
Signature of the Mentor			Date	29.04.2024


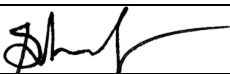
Week 6

Duration	Start Date	18.03.2024	End Date	24.03.2024
Date	Task Completed	Objectives of the tasks	Problems	Solutions
18.03.2024	Referred to the React.js tutorials: video no. 01	Learn about basics of React.js and other fundamentals.	Mistakenly Node.js is not installed.	Installed the Node.js to continue coding.
19.03.2024	Install Visual Studio Code and other related React.js extensions.	Setup the coding application.	None.	None.
20.03.2024	Referred to the React.js tutorials: video no. 02	Learn about basics of React.js and other fundamentals.	None.	None.
21.03.2024	Referred to the React.js tutorials: video no. 03	Learn about React component handling in React.js.	None.	None.
22.03.2024	Referred to the React.js tutorial videos and try to do some coding.	Get knowledge in React.js coding.	An error occurred while coding due to a missing package.	Installed the required package and solved the issue.
23.03.2024	Referred to the React.js tutorials: video no. 04	Learn about CSS styles for components in React.js.	None.	None.
24.03.2024	Referred to the React.js tutorials: video no. 05	Learn about React.js page handling and some coding part.	None.	None.
Summary for the week	Learn about React.js fundamentals and package installing in coding.	Get knowledge in React.js coding.	None.	None.
Task for the next week	Learn about further techniques in React.js coding.	Get knowledge in various React.js techniques.	None.	None.
Remarks				
Signature of the Student			Date	03.04.2024
Signature of the Mentor			Date	29.04.2024


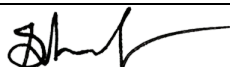
Week 7

Duration	Start Date	25.03.2024	End Date	31.03.2024
Date	Task Completed	Objectives of the tasks	Problems	Solutions
25.03.2024	Referred to the React.js tutorials: video no. 06	Learn about create dynamic components in React.js.	None.	None.
26.03.2024	Referred to the React.js tutorials: video no. 07	Learn about React.js props handling.	None.	None.
27.03.2024	Referred to the React.js tutorial videos and try to do some coding.	Get knowledge in React.js coding.	None.	None.
28.03.2024	Referred to the React.js tutorials: video no. 08	Learn about React.js React Bootstrap.	None.	None.
29.03.2024	Began to code the UI of the website in React.js using VS Code.	Develop the UI of the website.	Coding errors.	Referred video tutorials and overcame the issue.
30.03.2024	Coded the UI of the website in React.js using VS Code.	Develop the UI of the website.	An error occurred while coding due to a missing package.	Installed the required package and solved the issue.
31.03.2024	Mentor meeting	To identify mistakes of our UI/UX and ask for solutions to the problems we have.	None.	None.
Summary for the week	Learn about React.js fundamentals and begin to code the UI of the website using React.js.	Develop the UI of the website.	None.	None.
Task for the next week	Complete the rest of the coding part in UI design for the website.	Design and code the UI of the website.	None.	None.
Remarks				
Signature of the Student			Date	04.04.2024
Signature of the Mentor			Date	29.04.2024


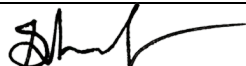
Week 8

Duration	Start Date	01.04.2024	End Date	07.04.2024
Date	Task Completed	Objectives of the tasks	Problems	Solutions
01.04.2024	Coded the UI of the website in React.js using VS Code.	Develop the UI of the website.	An error occurred while coding due to a missing package.	Installed the required package and solved the issue.
02.04.2024	Coded the designed UI of the website using React.js.	Develop the UI of the website.	Coding errors.	Referred YouTube videos and overcame the issue.
03.04.2024	Coded the designed UI of the website using React.js.	Develop the UI of the website.	Coding errors.	Referred YouTube videos and overcame the issue.
04.04.2024	Scheduled a group meeting.	Discuss about the current situation of the project.	None.	None.
05.04.2024	Coded the designed UI of the website using React.js.	Develop the UI of the website.	Coding errors.	Referred YouTube videos and overcame the issue.
06.04.2024	Coded the designed UI of the website using React.js.	Develop the UI of the website.	Coding errors.	Referred YouTube videos and overcame the issue.
07.04.2024	Coded the designed UI of the website using React.js.	Develop the UI of the website.	An error occurred while coding due to a missing package.	Installed the required package and solved the issue.
Summary for the week	Started and trying to complete the UI for the website using React.js.	Develop user-friendly website using React.js in an easy and timely manner.	None.	None.
Task for the next week	Complete the rest of the coding part in UI design for the website and build the hardware structure of the project using IoT devices.	Complete the full project on time.	None.	None.
Remarks				
Signature of the Student			Date	07.04.2024
Signature of the Mentor			Date	29.04.2024


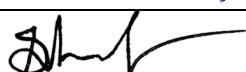
Week 9

Duration	Start Date	08.04.2024	End Date	14.04.2024
Date	Task Completed	Objectives of the tasks	Problems	Solutions
08.04.2024	Coded the designed UI of the website using React.js.	Develop the UI of the website.	Coding errors.	Referred YouTube videos and overcame the issue.
09.04.2024	Coded the designed UI of the website using React.js.	Develop the UI of the website.	An error occurred while coding due to a missing package.	Installed the required package and solved the issue.
10.04.2024	Built a prototype for the hardware structure and circuit structure.	Develop the hardware structure of the project and connects with the mobile application.	None.	None.
11.04.2024	Coded the designed UI of the website using React.js.	Develop the UI of the website.	None.	None.
12.04.2024	None.	None.	None.	None.
13.04.2024	None.	None.	None.	None.
14.04.2024	None.	None.	None.	None.
Summary for the week	Complete the rest of the coding part for the UI for the website using React.js.	Develop user-friendly website using React.js in an easy and timely manner.	None.	None.
Task for the next week	Develop the backend for the website and build the hardware structure using IoT devices.	Complete the project.	None.	None.
Remarks				
Signature of the Student			Date	15.04.2024
Signature of the Mentor			Date	29.04.2024

Week 10

Duration	Start Date	15.04.2024	End Date	21.04.2024
Date	Task Completed	Objectives of the tasks	Problems	Solutions
15.04.2024	Began to build the hardware structure using IoT devices.	Develop the circuit and hardware structure of the project.	Some IoT devices not available in the area.	Unavailable IoT devices are ordered from online market.
16.04.2024	Began to build the hardware structure using IoT devices.	Develop the circuit and hardware structure of the project.	None.	None.
17.04.2024	Referred to YouTube videos for backend development.	Develop the backend for the website.	None.	None.
18.04.2024	Scheduled a group meeting.	Discuss about the further progress of the project.	None.	None.
19.04.2024	Referred to YouTube videos for backend development.	Develop the backend for the website.	None.	None.
20.04.2024	Built the hardware structure using IoT devices.	Develop the circuit and hardware structure of the project.	Some IoT devices are not interconnected with the circuit board.	Reconnecting with the circuit board with new wires solved the issue.
21.04.2024	Scheduled a mentor meeting.	To identify mistakes of our UI/UX and ask for solutions to the problems we have.	Coding errors and mistakes of our UI/UX.	Asked from mentor and solved those issues.
Summary for the week	Began to develop the hardware structure with IoT devices and referred tutorials for backend development of the website.	Develop hardware structure with IoT devices and develop the backend for the website.	None.	None.
Task for the next week	Refer tutorial videos for backend development and begin to develop the backend and complete the hardware structure of the project.	Complete the project.	None.	None.
Remarks				
Signature of the Student			Date	21.04.2024
Signature of the Mentor			Date	29.04.2024

Week 11

Duration	Start Date	22.04.2024	End Date	28.04.2024
Date	Task Completed	Objectives of the tasks	Problems	Solutions
22.04.2024	Referred to YouTube videos for backend development.	Develop the backend for the website.	None.	None.
23.04.2024	Began to code the backend for the website.	Develop the backend for the website.	Coding errors.	Referred YouTube videos and overcame the issue.
24.04.2024	Completed the rest of the coding part for the backend for the website.	Develop the backend for the website.	Coding errors.	Referred YouTube videos and overcame the issue.
25.04.2024	Completed the rest of the coding part for the backend for the website.	Develop the backend for the website.	Coding errors.	Referred YouTube videos and overcame the issue.
26.04.2024	Built the rest of the hardware structure using IoT devices.	Develop the circuit and hardware structure of the project.	None.	None.
27.04.2024	Scheduled a group meeting.	Discuss about the progress of the project and journal submission.	None.	None.
28.04.2024	Scheduled a mentor meeting.	Discuss about the progress of the project and journal submission.	Coding errors and mistakes of our hardware designing structure.	Asked from mentor and solved them.
Summary for the week	Develop the backend for the user-friendly website and complete the hardware structure of the project.	Complete the parts of the project.	None.	None.
Task for the next week	Develop the backend for the website.	Complete the backend of the website.	None.	None.
Remarks				
Signature of the Student			Date	28.04.2024
Signature of the Mentor			Date	29.04.2024

Week 12

Duration	Start Date	29.04.2024	End Date	05.05.2024
Date	Task Completed	Objectives of the tasks	Problems	Solutions
29.04.2024				
30.04.2024				
01.05.2024				
02.05.2024				
03.05.2024				
04.05.2024				
05.05.2024				
Summary for the week				
Task for the next week				
Remarks				
Signature of the Student			Date	
Signature of the Mentor			Date	

Week 13

Duration	Start Date		End Date	
Date	Task Completed	Objectives of the tasks	Problems	Solutions
Summary for the week				
Task for the next week				
Remarks				
Signature of the Student			Date	
Signature of the Mentor			Date	

Week 14

Duration	Start Date		End Date	
Date	Task Completed	Objectives of the tasks	Problems	Solutions
Summary for the week				
Task for the next week				
Remarks				
Signature of the Student			Date	
Signature of the Mentor			Date	

Week 15

Duration	Start Date		End Date	
Date	Task Completed	Objectives of the tasks	Problems	Solutions
Summary for the week				
Task for the next week				
Remarks				
Signature of the Student			Date	
Signature of the Mentor			Date	

Mentor/(s) Approval for the Final Submission

[illegible]

Internal Supervisor/(s) Approval for the Final Submission

[illegible]

Any other Remarks

[illegible]

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