



Software Project Management

Lab 4

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Task 1. Discuss risks associated with certain activities and the countermeasures you will take in order to mitigate those risks. The stated counter-measures will be considered as tasks.

Mention at least 2 risks and their respective counter-measures.

This project is technically complex and involves developing across several different platforms and technologies, such as embedded programming with C language and working with hardware, including multiple different kinds of sensors, developing with two different JavaScript frameworks, for mobile, and for web applications, and developing a database that will contain sensitive patient information and has to comply with provincial and federal security standards.

Moreover, the system has to be robust, available and reliable, such that a patient in need can be located accurately based on the necklace data, contacted for emergency instructions, and appropriate services should be dispatched in a time-sensitive manner.

A critical project like this is at high risk of **personnel shortfalls**, which can potentially jeopardize the success of the product on the market, have serious legal repercussions, or delay the project delivery timeline, which will translate into higher costs.

To counter-measure this risk, our team will focus on **implementing a rigorous hiring process** to ensure we onboard people that have the necessary skills and experience for this project. To maintain and develop the skill level among the personnel, we will **implement weekly team-building exercises and learning sessions**.

Another risk for this project would be **developing the wrong user interface**. Since falls mostly happen with the elderly, we anticipate that the majority of our users will be people over 60, who usually do not have extensive tech skills. This means that the mobile and web user interfaces have to be simple, intuitive, and easy to use for someone who may have a deteriorating vision, unsteady hands, limited understanding of modern UI conventions, etc. The UI also should be user-friendly and appealing to the family members and designated care-takers of our users that will have access to their profile for safety measures.

To counter-measure this risk, we will **develop early prototypes of UIs for both mobile and web platforms**, and test them with a target group. Our prototypes will then undergo several rounds of review and improvement to ensure that the final product addresses all the critical needs of our customers.

One more critical risk for this project that is important to discuss here is the **real-time performance problems**. One of the key functions of our fall detector is to be able to not only detect a fall but also locate the user in distress (in case he/she are not with anyone who can assist), contact the emergency services and inform the user in need of help that help is on the way. All these functions rely on real-time data and a

stable and reliable connection with the device worn on the user. Therefore, real-time performance is critical to our product.

To counter-measure this risk we will **use prototypes and will rigorously test these prototypes in real-life situations** to ensure real-time performance quality at the level necessary for our application. Once the final product is complete, we will also **implement acceptance testing** to ensure, once again that our product complies with real-time performance requirements.

In summary, the following **three key risks and their respective counter-measures** have been discussed:

Risk	Counter-measure
Personnel shortfalls	Implement a rigorous hiring process, hire staff with skills and experience relevant to the project and technologies used in the project. Implement team-building exercises and lunch and learn sessions.
Developing the wrong user interface	Prototype early and test with multiple target user groups.
Real-time performance problems	Use the prototype to ensure real-time performance quality; test final product – acceptance testing.

The above risks and counter-measures were taken from lab 3 material.

Task 2. Discuss the resources for the project. One specific resource is the team. List 3 teams/team members and assign activities/responsibilities from your activity diagram to each one of them.

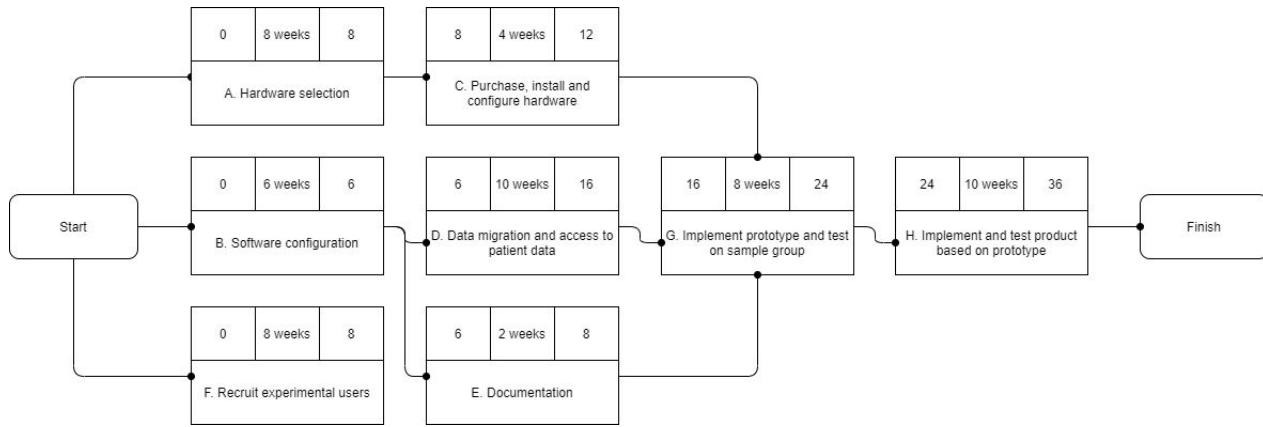


Figure 1. Activity diagram for reference

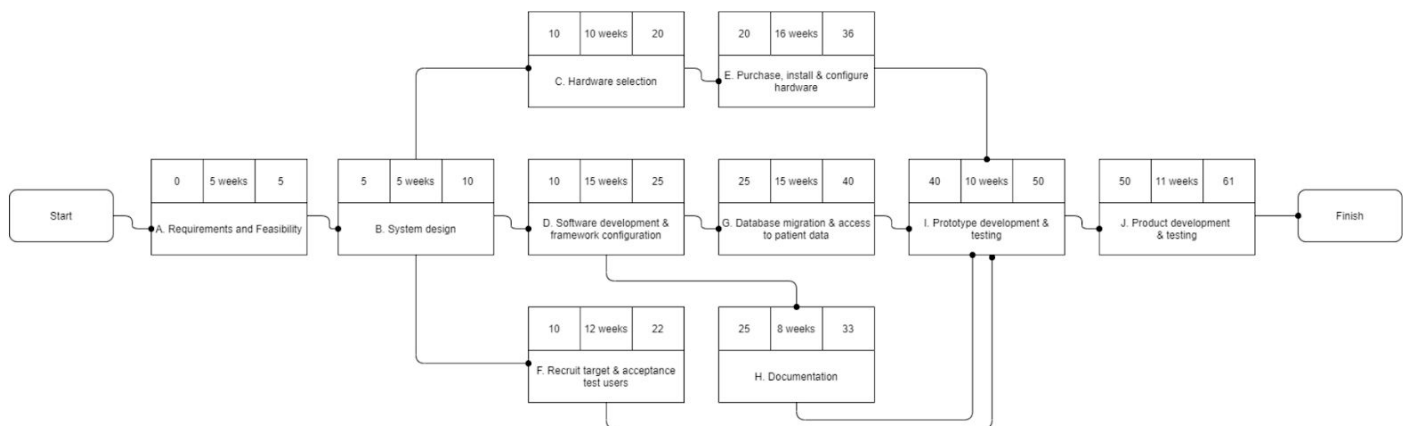


Figure 2. Updated activity diagram

For the resources, there are 9 people required for this project. There are two individual roles, System Analyst and System Architect, both of which need individuals with extensive experience in their corresponding areas because the deliverables for these roles form the basis for the entire project. Ideally, we would be looking for someone with 5-8 years of experience to fill these roles.

Next, there are three teams - Hardware Engineering and Support team, Software Development and Support team, and Technical Liaison team. These teams will take the requirements and the system design delivered by System Analyst and System Architect and translate them first into several versions of prototypes, tested with target teams, and finally into the market-ready product for acceptance testing.

See Table 1 below for a detailed breakdown of roles, teams, and responsibilities.

Table 1. Resources and Corresponding Responsibilities

Resource Title	Qty (persons)	Responsibility (Tasks)
System Analyst	1	responsible for gathering requirements, performing a feasibility study, researching technical options for implementation
System Architect	1	responsible for designing the overall system, including all of its components - hardware, software, mobile, web, and database
Hardware Engineering and Support	2	Tasks A, C, G, H
Software Development and Support	3	Tasks B, D, E, G, H
Technical Liaison	2	Tasks F, E, G, H Recruiting a suitable target group for prototype testing and sample group for acceptance testing, functioning as a liaison between technical staff and the customers, shareholders, etc, assisting with creating high-quality documentation for technical purposes and for users.

Tasks G and H are cross-team/cross-functional and require the involvement of all teams.

Task 3. Create a Microsoft Project Professional file (.mpp):

- Turn activities into tasks, give them duration, start and end time; adjust **dependent tasks** appropriately
- Enter larger tasks in .mpp as a summary and divide into smaller subtasks
- Must have at least **one dependent task** and **one summary**
- Total project duration: 1-3 months, starting from February 2020; account for holidays/weekends
- Make sure your tasks include the 2 risk mitigation tasks you mentioned in your document
- Add your resources and assign them to tasks

Please note, that the original COCOMO and Function Point estimates for this project resulted in an estimated 12.5 months timeline in Lab 3. In Lab 4 we are given a duration of 1-3 months. Given the complexity of this project that has already been discussed in Lab 3, our team feels that the maximum allowed time of 3 months is more appropriate in our case.

Starting from February 1, 2019, the project will take three full months, with the delivery of the final market-ready product on April 30, 2019, by the end of the day. This constitutes 89 calendar days or 61 business days, with 28 days skipped as weekends (13 Saturdays and 13 Sundays) and 2 holidays (Family Day - Monday, February 18, 2019, and Good Friday - Friday, April 19, 2019).

See .mpp file for the detailed timeline and resource allocation.