Fall monitor

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Group 7

Introduction

- Our team chose this topic because it presents a level of complexity that involves hardware and software components and presents a challenge that affects the lives of people on a daily basis. Falls and injuries associated with them present a serious problem to the elderly, especially if they live on their own and are unable to obtain assistance in a timely manner.

- the fall monitoring device must be small, portable, easy to use and convenient to carry around. A practical choice for these criteria would be designing the fall monitor as a necklace.

Description

Details,Problems & Objectives:

- small (portable)
- Easy to use
- Waterproof
- Detect fall accurately
- Distinguish between fall and physical activity/movement
- Distinguish between conscious/unconscious and other serious medical issues
- Implementing proper protocol for communicating with emergency services
- Battery for 24 Hrs and rapid charging
- Soft beeping sound when fully charged
- Accurately detecting fall
- SIM card for connection with emergency services
- Simple UI(user interface) for intended audience with limited tech skills
- Web app to provide range of services

Infrastructure

Application and database servers(written in C and angular/react for the application and SQL)]

- Four framework(React Native, React.js, Angular.js, MySQL

Data collection: fall sensors (height, velocity, orientation), speaker, mic, GPS, heartbeat sensor

Charging station for the necklace

The light-weight without sharp edges devices

Cellular connectivity (mobile provider infrastructure)

Risks

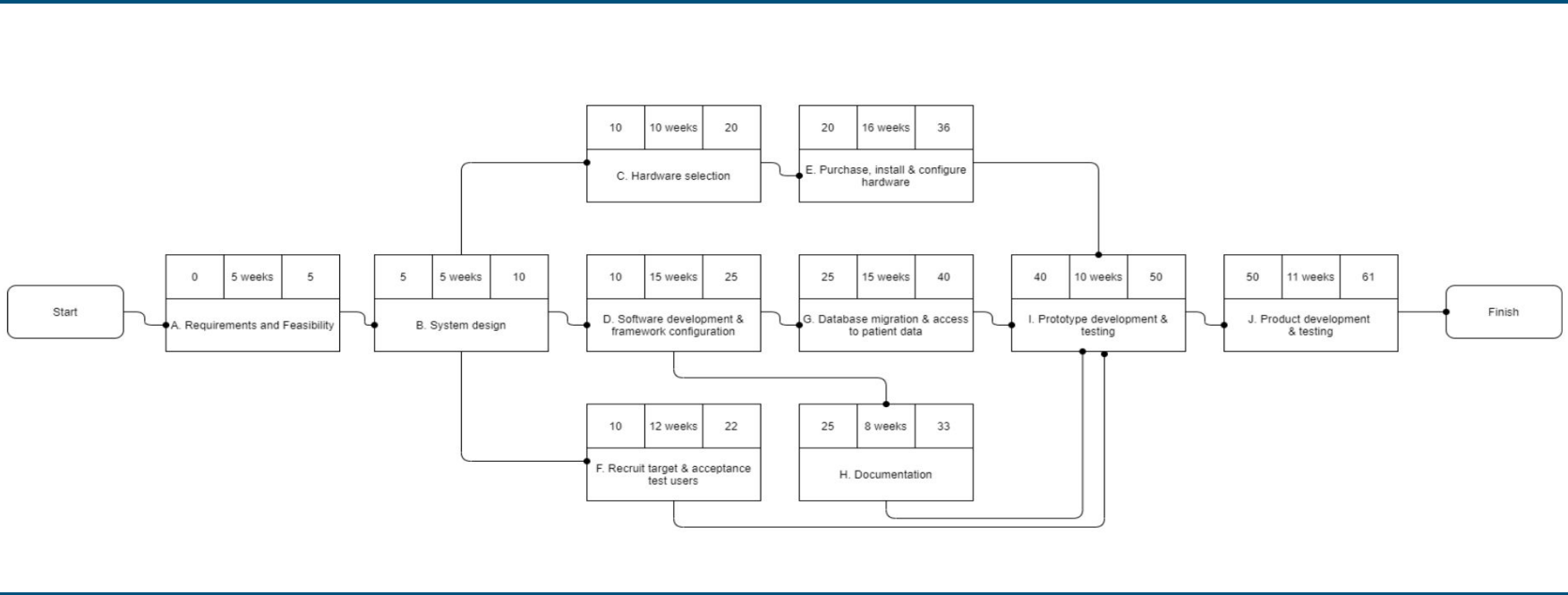
Risk	Counter-measure
Personnel shortfalls	Implement a rigorous hiring process, hire staff with skills and experience relevant to the project and technologies used in the project. Implement team-building exercises and lunch and learn sessions.
Developing the wrong user interface	Prototype early and test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

Steps to complete

- Assessing the requirements and feasibility
- System design
- Hardware selection
  - Purchase, install and config hardware
- Software development & framework config.
  - Database migration & access to patient data
  - documentation
- Recruitment
- Prototyping & testing
- Product development & testing

Activity Diagram

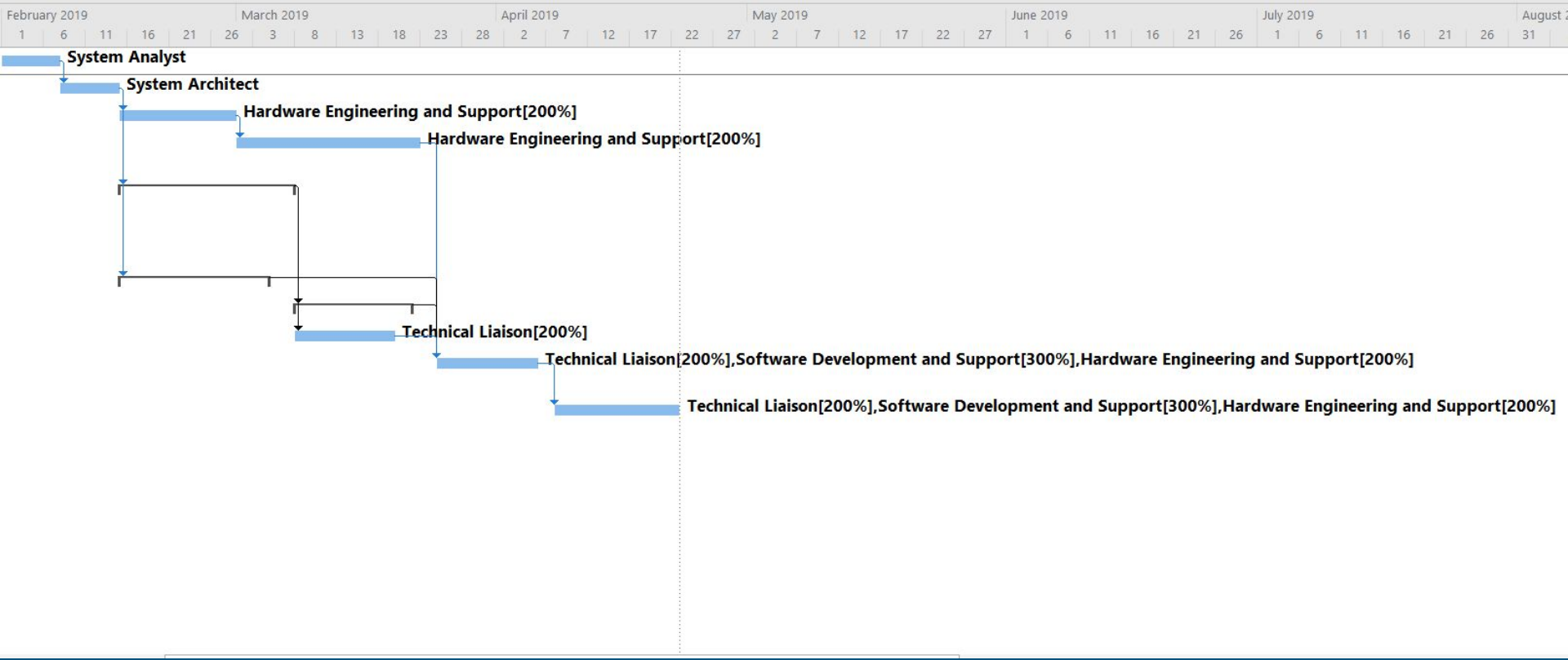
Estimated 12.4 months(54 weeks) duration



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.

Gantt Chart


February 2019
March 2019
April 2019
May 2019
June 2019
July 2019
August 2
1 6 11 16 21 26 3 8 13 18 23 28 2 7 12 17 22 27 2 7 12 17 22 27 1 6 11 16 21 26 1 6 11 16 21 26 31
System Analyst
System Architect
Hardware Engineering and Support[200%]
Hardware Engineering and Support[200%]
Technical Liaison[200%]
Technical Liaison[200%],Software Development and Support[300%],Hardware Engineering and Support[200%]
Technical Liaison[200%],Software Development and Support[300%],Hardware Engineering and Support[200%]