Smart Hospital

By

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Abstract

Here write the abstract

Dedication and acknowledgements

Here goes the dedication.

Author's declaration

I declare that the work in this dissertation was carried out in accordance with the requirements of the University's Regulations and Code of Practice for Research Degree Programmes and that it has not been submitted for any other academic award. Except where indicated by specific reference in the text, the work is the candidate's own work. Work done in collaboration with, or with the assistance of, others, is indicated as such. Any views expressed in the dissertation are those of the author.

SIGNED: ..... DATE: .....

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Chapter 1

Introduction

Begins a chapter. Example: When the beloved cellist (Christopher Walken - outstanding) of a world-renowned string quartet receives a life-changing diagnosis, the group's future suddenly hangs in the balance: suppressed emotions, competing egos and uncontrollable passions threaten to derail years of friendship and collaboration. Featuring a brilliant ensemble cast (including Philip Seymour Hoffman, Catherine Keener and Mark Ivanir as the three other quartet members), it is a fascinating look into the world of working musicians, and an elegant homage to chamber music and the cultural world of New York. The music, of course, is ravishing (the score is the work of regular David Lynch collaborator Angelo Badalamenti): A Late Quartet hits all the right notes.

1.1 Motivation

Begins a section.

1.1.1 Client Brief

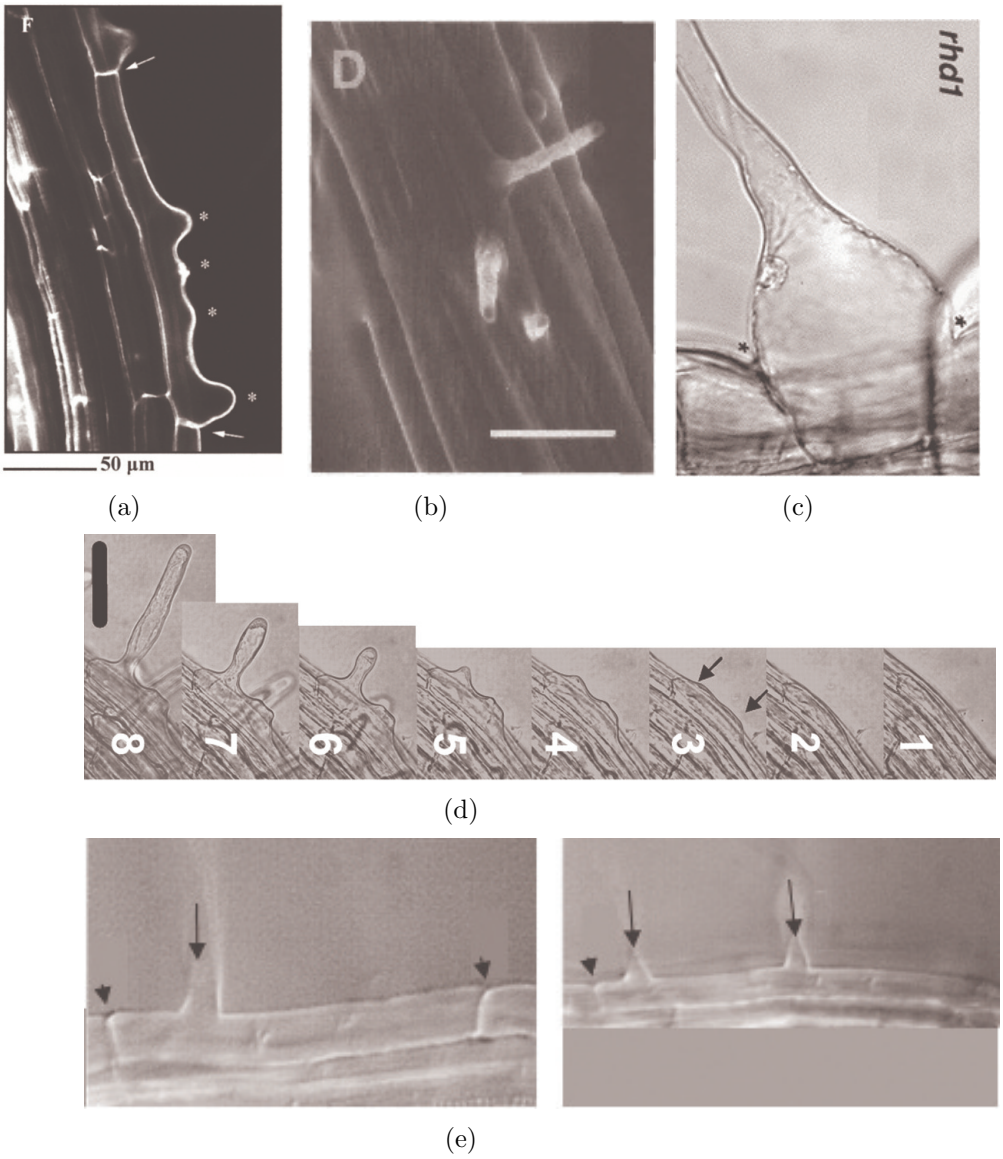
Begins a subsection.

1.1.2 General

content

1.1.3 Specific

content



(a) (b) (c)

(d)

(e)

Figure 1.1: (a) A mutant RH cell. Asterisks show multiple sites of RH initiation in a single root hair cell (indicated by the arrows). Figure reproduced from [5]. (b) Hair-forming cell with three RH initiation locations. The bar represents $50\mu m$. Figure reproduced from [3]. (c) Large bump in mutant *rhd1*. Figure reproduced from [1]. (d) Mutant overexpressing gene *ROP2*; from right-hand to left-hand, numbers indicate progressive snapshots at different times. RH initiation sites are indicated by the arrows. The bar represents $75\mu m$. Figure reproduced from [2]. (e) Mutants affected by auxin. On the left-hand side, RH site is farther away from the apical end (left arrow cap); on the right-hand side, multiple RH locations (arrows). Figure reproduced from [4].

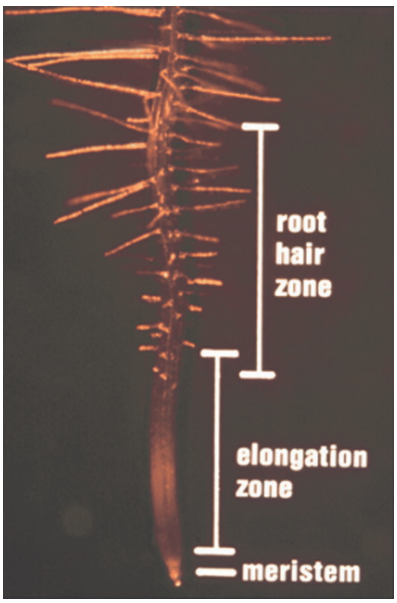


Figure 1.2: Developmental zones of an Arabidopsis root. Figure reproduced from [1].

Chapter 2

Background

2.1 Relative Work

2.1.1 SDG Goal 3

2.1.2 Existing Solutions

2.2 Requirements

The system is primarily designed as a web-based platform for general hospital staff, specifically doctors and nurses, to facilitate interaction with patients. The core aim is to enable healthcare professionals to manage patient information, conduct remote consultations, and reduce the need for patients to visit the hospital in person. While patients are also considered stakeholders of the system, the focus of the design and development process was placed on the needs of doctors and nurses. The decision was driven by the goal of reducing the administrative and operational workload for hospital staff, thereby improving efficiency within clinical workflows.

To ensure a functional and effective experience for hospital staff and patients, the system was designed to support a core set of features. These include secure user login and authentication for doctors and nurses, the ability to record patient vitals and view historical data trends, and an interface for remote consultation to minimise unnecessary hospital visits. As the project was developed from scratch and targeted doctors, nurses, and patients, it required the collection of foundational requirements to support the intended clinical workflow. Based on input from our original client, Virtual Hospital Africa, we analysed their existing system and designed a new solution aligned with the vision of building a smart hospital.

Non-functional requirements were also considered throughout the development process. These included ensuring a responsive and mobile-friendly user interface, main- taining data privacy through secure authentication and role-based access control, and optimising performance for minimal load times to support real-time clinical usage. These system capabilities are closely aligned with the user stories presented blew.

As a...	**I want...**	**So that...**	**Technical ability**
Doctor	To record and view patient vitals history	I can make more accurate clinical decisions based on patient trends	3–5
Doctor	To view patient contact information	I can conduct online or follow-up appointments to discuss test results or treatments	3–5
Nurse	To input vitals data easily through a form interface	I can reduce manual paperwork and save time during rounds	2–4
Patient	To view my previous visits and vitals data online	I can better understand my health condition over time	2–3

Table 2.1: Smart Hospital User Stories Table

Chapter 3

Design and Implementations

Begins a chapter. Example: When the beloved cellist (Christopher Walken - outstanding) of a world-renowned string quartet receives a life-changing diagnosis, the group's future suddenly hangs in the balance: suppressed emotions, competing egos and uncontrollable passions threaten to derail years of friendship and collaboration. Featuring a brilliant ensemble cast (including Philip Seymour Hoffman, Catherine Keener and Mark Ivanir as the three other quartet members), it is a fascinating look into the world of working musicians, and an elegant homage to chamber music and the cultural world of New York. The music, of course, is ravishing (the score is the work of regular David Lynch collaborator Angelo Badalamenti): A Late Quartet hits all the right notes.

3.1 Methodology

3.1.1 Work Flow

3.1.2 Process

3.1.3 Front-end Tools

3.1.4 Back-end Tools

3.1.5 Testing Tools

3.2 Front-end Design and Implementations

3.2.1 Early Stage-Virtual Hospital Africa(VHA)

3.2.2 Smart Hospital

3.3 Back-end Design and Implementations

Chapter 4

Evaluation and Testing

Begins a chapter. Example: When the beloved cellist (Christopher Walken - outstanding) of a world-renowned string quartet receives a life-changing diagnosis, the group's future suddenly hangs in the balance: suppressed emotions, competing egos and uncontrollable passions threaten to derail years of friendship and collaboration. Featuring a brilliant ensemble cast (including Philip Seymour Hoffman, Catherine Keener and Mark Ivanir as the three other quartet members), it is a fascinating look into the world of working musicians, and an elegant homage to chamber music and the cultural world of New York. The music, of course, is ravishing (the score is the work of regular David Lynch collaborator Angelo Badalamenti): A Late Quartet hits all the right notes.

Chapter 5

Conclusion

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Chapter 6

Reference

Appendix A

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