A blue and white background

Description automatically generated**NarcoTech**

**Project Proposal**

**Alexa Physio Reminder Skill**

**Appointment Reminder System for O.P.S**

**Team Members Contact**

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# Introduction

This proposal aims to outline a possible solution for patients’ self-management of physiotherapy appointments at Optimal Physiotherapy Services (O.P.S.). NarcoTech aims to revolutionize health care through innovative solutions. It is for this reason that we propose the implementation of an Alexa skill to:

* Remind patients about appointments
* Allow patients to check when their appointments are scheduled

In the software solution proposal below, you will find a detailed breakdown of the solution we hope to implement. The process outlined aims to ensure the timely and cost-effective completion of this undertaking. Our team at NarcoTech has full confidence that the implementation of the proposed solution will introduce efficiency and reliability to the booking process at O.P.S.

# Why Choose NarcoTech?

NarcoTech is a small development team with a solution-driven attitude. Creativity is the company’s secret ingredient because of its collaborative nature and ability to communicate ideas between its employees. The team will go above and beyond to deliver a quality software product. NarcoTech will evaluate the customer needs and ensure its solution aligns with those needs. The company values communication with the client since it provides high standards of customer service and satisfaction. NarcoTech will use a systematic approach of milestones for each activity task to achieve quality deliverables to the client.

Creativity



Collaboration

Communication

Cooperation

# Our Team

**Dwayne Archer - Software Engineer, Marketing & Sales**

Dwayne Archer is a second-year student at the University of the West Indies (UWI) pursuing a degree in Computer Science and Economics. He has experience with software development from completing courses in Data Structures and Computing I and II at UWI. In addition, Mr. Archer has a background in graphic design which allows him to think creatively. As a result, he is a capable individual who will add value to the team.

**Tarika Birch - Project Manager, PRO**

Ms. Tarika Birch is a student in her second year at the University of the West Indies where she is currently pursuing a degree in BSc. Computer Science with Management. Given her educational background as well as her hands-on experience as a contract Software Engineer for the National Center for State Courts, she possesses a diverse skillset which makes her suitable for her role as Project Manager.

**Aaron Grimes - Marketing & Sales, Documentalist**

Mr. Aaron Grimes is a level 3 student at the University of the West Indies and is currently pursuing a bachelor's degree in information technology and management. In addition to this, he is also the Chief Operations Officer of a digital marketing company known as Inova Media. Given his passion and experience in marketing along with his major, he has the necessary skills to handle the marketing aspect of the project and the necessary documentation.

**Kai Hill - Software Engineer, Documentalist**

Mr. Kai Hill is a second-year student at the University of the West Indies and is currently pursuing a bachelor's degree in computer science. In addition to his certifications in Cloud Computing offered by Amazon Web Services, he has a strong background in statistical and analytical mathematics, which aids in him creating efficient yet robust software. His skill set makes him a valuable asset to the team as a software engineer.

**Kelilah Mayers - Quality Assurance, Product Manager**

Ms. Kelilah Mayers is a level 2 student at the University of the West Indies pursuing a degree in Electronics and Information Technology and she possesses an Associate’s Degree in Marketing and Information Technology from the Barbados Community College. Ms. Mayers has a love for all things technology and aims to explore a career in Automobile Technology. Her passion for the field makes her more than capable of tackling this project as the Product Manager and Quality Assurance Specialist.

# Project Background

The management at Optimal Physiotherapy Services (O.P.S.) has recognized a gap in rehabilitative care throughout the island. As such, the organization has decided to implement an OPS App Suite which aims to be a centralized hub for software solutions, catering to the needs of patients in rehabilitative care. One of these needs, as identified by our team at NarcoTech, involves the management of patients’ physiotherapy appointments. As such, it is our aim to provide a forward-thinking solution, designed to assist patients in this aspect of the rehabilitation process.

**Problem Statement**

Optimal Physiotherapy Services (O.P.S) has identified a critical gap in patient care throughout the island, specifically concerning the support provided during their patients' rehabilitation process. Our team at NarcoTech has observed a common challenge among older individuals dealing with Repetitive Strain Injury (RSI) in the Achilles Tendon. These individuals tend to have difficulty managing their physiotherapy sessions. This stems from difficulty remembering booked appointments with their physical therapists. The aforementioned issue can lead to missed physiotherapy sessions, potentially extending patients’ recovery, and resulting in prolonged post-rehabilitative care. This highlights a pressing need for streamlined and user-friendly solutions to enhance the patient's experience and improve overall recovery times.

**Problem Solution**

In order to reduce the number of missed appointments and enhance the overall patient recovery experience, an Alexa skill should be developed to keep users abreast of their upcoming appointments. This skill will allow users to remain informed about scheduled appointments with their physiotherapists at O.P.S, ensuring they never miss out on their physiotherapy sessions unnecessarily. The Physio Reminder skill will provide users with a convenient and hands-free method of staying on top of their appointments. Implementing this approach will not only benefit users but will also improve operational efficiency at O.P.S. by minimizing unused appointment times.

# Objectives

The purpose of the Physio Reminder skill is to streamline the appointment scheduling process. To accomplish this, the Alexa skill will:

* **Reduce Missed Appointments:** The implementation of this system will help patients remember and manage their physiotherapy appointments
* **Improve Recovery Times:** The solution should reduce the extended recovery times due to missed appointments
* **Ease of Confirmation:** The proposed system will make it easier for clients to double check when their next appointment is scheduled so they can keep track of when they next need to go to physiotherapy.

# Constraints

1. **Time**: Skill must be fully developed and tested within 4 weeks.
2. **Hardware:** The skill will require an Alexa-enabled device with a working microphone and speaker. Some examples of these devices include:
   1. Alexa Echo Devices
   2. Smart Home Devices
   3. Phone/Tablet
   4. Computer
3. **Internet Connectivity:** Users will need a stable internet connection in order for the skill to function properly.
4. **Privacy & Security:** The Alexa skill should not reveal an individual’s schedule information to other users. The skill design should be privacy conscious and implement data hiding, such that:
   1. Users of skill must not be able to access the client’s or other users’ data.
   2. Client must not be able to access users’ data.
5. **Usability:** The skill should be user-friendly, keeping in mind that the users are of an older age range and need high levels of accessibility.
6. **Voice Interaction:** The skill's functionality is limited to voice interactions, which may pose constraints for users with hearing or speech impairments.

# Deliverables

**Internal Project Deliverables**

1. Project Logbook
2. Project Plan
3. Specifications & Requirements Document
4. Software Testing & Validation Document

**Product Deliverables**

1. User-friendly appointment reminder skill for client’s customers

* Reminders about upcoming appointments
* Ability to check appointment information

Technical and User Manuals

1. Marketing Plan

# Estimated Project Timeline

## Gantt Chart

A screenshot of a project

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## Estimated Task Time

|  |  |
| --- | --- |
| **Tasks** | **Estimated Time** |
| **Requirements** | **17 days** |
| Elicit Requirements Criteria | 4 days |
| Perform Client Consultation | 1 day |
| Creating Specifications Documentation | 4 days |
| **Planning** | **13 days** |
| Creating Project Management Plan | 8 days |
| Creating Marketing Plan | 5 days |
| **Design** | **5 days** |
| Creating Design | 4 days |
| Creating Design Documentation | 4 days |
| **Implementation** | **7 days** |
| System Development | 4 days |
| Technical Documentation | 6 days |
| **Testing & Validation** | **8 days** |
| Creating Testing Documentation | 7 days |
| System Testing | 2 days |
| Code Review | 2 days |
| **Packaging** | **4 days** |
| Creating User Manual | 2 days |
| Packaging Product | 2 days |

## Project Milestones

|  |  |  |
| --- | --- | --- |
| Milestone | Phase | Date |
| Project Start | Initialization | 02/10/23 |
| Finalized Requirements | Requirements | 14/10/23 |
| Final Design Delivery | Design | 06/11/23 |
| Skill Developed - Alpha Version | Implementation | 11/11/23 |
| Skill Reviewed – Beta Version | Testing | 15/11/23 |
| Product Delivered | Packaging | 18/11/23 |
| Project End | Closing | 18/11/23 |

## Project Deliverables

|  |  |  |
| --- | --- | --- |
| Deliverable | Type | Date |
| Prototype | Internal | 18/10/23 |
| Specifications & Requirements | Internal | 27/10/23 |
| Marketing Plan | External | 01/11/23 |
| Design Documentation | Internal | 05/11/23 |
| Technical Manual | External | 10/11/23 |
| Source Code – Alpha Version | Internal | 11/11/23 |
| Testing Documentation | Internal | 14/11/23 |
| Source Code – Beta Version | Internal | 15/11/23 |
| User Manual | External | 17/11/23 |
| Project Logbook | Internal | 17/11/23 |
| Final Product (Developed Skill + Documentation) | External | 18/11/23 |

# Estimated Project Costs

|  |  |  |  |
| --- | --- | --- | --- |
| Tasks | Quality Hours | Cost / Hour ($BDS) | Estimated Cost ($BDS) |
| Requirements Criteria | 2 | 20 | 40 |
| Client Consultation | 2 | 0 | 0 |
| Design | 14 | 55 | 770 |
| Implementation | 20 | 65 | 1300 |
| Marketing and Sales | 16 | 25 | 400 |
| Quality Assurance | 4 | 20 | 80 |
| Post Code Review | 4 | 20 | 80 |
| Packaging & Delivery | 4 | 40 | 160 |
| Hardware & Software | | | 3500 |
| Marketing Budget | | | 3000 |
| Total Estimated Cost | | | 9330 |

# Success Criteria

To define the success criteria of this project, NarcoTech has decided to take a SMART approach. Our criteria should be specific, measurable, achievable, realistic, and timely. As such, we have compiled the following criteria:

* The project is completed within the defined timeline
* The project is completed without exceeding the outlined budget
* The project meets the functional and non-functional requirements
* The final skill produced satisfies the needs of the target audience
* Project deliverables are presented in a timely manner
* Project deliverables meet the expectations of the customer (O.P.S.)
* Resources have been used efficiently with minimal wastage

# Alternative Solutions

**Automated Appointment Reminder System**

In this alternative solution, similar principles to those of the proposed system would be applied. This system would act as an extension of the current system with additional features surrounding the reminder functionality, ensuring patients never miss out on their appointments unnecessarily. The features of this alternative solution are as follows:

* **Appointment Notifications:** This solution would provide automated reminders to patients, delivered through their preferred medium. Some of these channels would include email or SMS.
* **Reminder Feedback:** This version of the system would allow patients to confirm their attendance by responding to the reminder message provided. This would enable the physiotherapists to get advanced information on the patient’s attendance.
* **Real Time Updates:** This alternative would provide real-time updates to the scheduling system used by O.P.S. staff, ensuring that changes in patients’ availability are reflected in real time.

This version of the skill would expand upon the solution being proposed, allowing for an effective reminder system to assist patients in their recovery process.

**Google-Integrated Scheduling Assistant**

An improved solution would aim to create a comprehensive appointment management system which goes beyond the current limitations of the proposed skill. The alternative solution would allow patients to manage their physiotherapy appointments effectively through the implementation of the following features:

* **Appointment Booking:** Patients would be able to easily book appointments with their physiotherapist through interaction with the Alexa skill.
* **Availability Checking:** Patients would be able to check the available times and dates for appointments in real time, allowing them to find a slot that best suits their schedule.
* **Appointment Rescheduling:** Accounting for unforeseen circumstances, patients would be able to easily reschedule their appointments.
* **Appointment Cancellation:** In the event that a patient can no longer attend an appointment, they would have the ability to easily cancel the appointment by requesting this feature through Alexa.
* **Google Calendar Integration:** The system would be integrated with patients’ Google calendars, updating these appointments on their calendar in real-time as users change and update their appointments through the Alexa skill. This would also allow for these appointments to be easily added to the schedules of the respective physiotherapists, providing an ease in the booking system for O.P.S. staff. This also provides for use of Google’s reminder features to ensure patients never miss an appointment.

This version of the system would allow patients to fully manage their physiotherapy appointments, easing the recovering process for these patients as well as automating the booking process at Optimal Physiotherapy Services.