CHOC Autism Collaboration

Project Requirements Specification Working Document

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Revision History

Date	Version	Description
1/25/2021	1.0	Creation of Document. Added basic knowledge of website/project
2/13/2021	2.0	Edited the stakeholder/audience. Included personas, user stories, and functional and nonfunctional requirements

1. Introduction

1.1 Purpose

Our client Kylie Castro works for the Children's Hospital of Orange County (CHOC) and has come up with a proposal in order to change the lives of parents, medical staff, and children with Autism Spectrum Disorder. Her proposal was for our team to create a website that would ease the stress of the parent and reduce stimuli for when a parent brings their child into the hospital. Because kids with Autism have trouble in social interactions and might not be able to communicate with ease, taking them to the hospital can be overwhelming for them, and our website would help directly reduce stress for the parent and child. This website will contain a survey that parents can take before they go to CHOC and provide for the nurses. The nurses can then make sure the environment of the room is correct when the parents and children come.

1.2 Scope

Kylie Castro is hopeful that this website can be given to CHOC so they can see the benefits of having it within their protocols.

ChocAutism is aimed towards reducing stimuli and standardizing the way that children, with autism spectrum disorder, receive sensory friendly, individualized care at hospital and doctor visits. The website will achieve this through a multitude of features with the leading one being a form that is directly received by a doctor or nurse so they can prepare accommodations for the children when they visit. Parents and guardians should be able to easily find clinics that specialize in caring for children with autism, near them. The website should also remind them to bring important items such as medical paperwork and sensory calming items for their children.

For children, the website aims to entertain them through interactive storybooks and coloring pages. It also aims to inform parents, guardians, and children about what to expect at a typical visit through short informative videos.

1.3 Definitions, Acronyms, and Abbreviations

Glossary	
Word	Definition
UCI	University of California, Irvine
CHOC	Children's Hospital of Orange County
ASD	Autism Spectrum Disorder

1.4 Audience and Stakeholders

1.4.1 Audience
- Parents
  - Parents will directly be in contact with our website because they will be using it to make and edit the environment survey for their child
- Nurses, Doctors, and other Healthcare Providers
  - Nurses will be able to navigate through the website to find training videos and resources. These training videos and resources will be specifically directed towards how to interact with children with Autism
- Children
  - Children will be interacting with the entertainment feature of the website.

1.4.2 Stakeholders
- Medical Staff
  - Medical staff will include doctors, therapists, aids, etc.
  - Medical staff will be indirectly involved in the website because they may want to include their own training videos or resources for parents
- Medical Researchers
  - Researchers for autism may be interested in the outcome of having this website
- CHOC Board of Directors
  - Will be indirectly involved because this website will be focused on patients within the hospital ground
- Other hospitals
  - They might be interested in the website and want to create something similar

1.5 Goals, Constraints, Assumptions

1.5.1 Goals
- Develop a website that will reduce the stimuli of an autistic child when they visit the hospital by providing related information to the treatment of the child to hospital staff.
- Reduce stress for parents pre-visit and during their visit at the hospital
- Correctly indicate what areas of the hospital environment could be stressful for child
- Provide resources for nurses on how to interact with a child diagnosed with ASD
- Entertain children diagnosed with ASD when they visit CHOC

1.5.2 Constraints
- Parents may not have more than one electronic device for themselves or their child
- Users may not be familiar with the usage of mobile devices.
- CHOC will allow this website to be developed
- We have to develop this website around medical laws and privacy regulations directly related to CHOC

1.5.3 Assumptions
- Parents have never been to CHOC before and need additional support
- Training for nurses in regards to treating children diagnosed with ASD is minimal
- Nurses need additional resources on how to interact with children diagnosed with ASD
- All parents have at least one electronic device to access the website
- Parents will have the time to go on the website before they visit CHOC
- The child diagnosed with autism will need to be entertained so the parent can interact with the doctor

2. Personas\Scenarios

2.1 Persona

Persona #1: Parent

Hardworking   Conscientious   Loving

Empathetic

Laura Carter

"Do the best you can until you know better, then do better."

Age: 34
Work: Stay-at-home parent
Family: Married, with two kids
Location: Orange, CA
Tier: High-Level

Bio

After graduating from college, Laura worked in an office setting for five years before settling down and getting married. After having their second child, Laura became a stay-at-home parent, caring for her nine-year-old daughter and four-year-old son. However, after her son became diagnosed at age 3 with level 3 (severe) autism spectrum disorder (ASD), she and her husband became divorced. She now spends all of her time at home caring for her two children, but has recently been worrying about finding a proper doctor's clinic for her son that can accommodate him, as she worries about her son's hypersensitivity to certain sounds, and his intense dislike for unfamiliar environments.

Scenario:

Laura has recently gone through a divorce and has decided to move back to the city of Orange to be closer to her parents and family. Having moved to a new area, she is urgent to find a clinic, that specializes in autism care, to schedule an appointment for her four year old son. She finds that the Children's Hospital of Orange County is nearby and makes an appointment with them. While waiting for and during the doctor's visit, Laura notices that her son is visibly very uncomfortable in this new environment and asks the doctor what might be the cause of this be. She finds out that the doctor herself does not know much about caring for a child with ASD. So, she asks the doctor if they had any resources to help better learn how care for children with autism and is recommended the ChocAutism website. Here, Laura learns that children with autism can often have a difficult time adapting to

Goals

- Find a clinic that specializes in caring for children with autism
- Be fully prepared for doctor's/hospital visits (e.g., comfort objects such as toys, blankets)
- Reduce panic and stress related to unfamiliarity with environment as much as possible
- Reduce sensitivity overload for child as much as possible

Frustrations

- Child does not like being touched, or being handled by unfamiliar people
- Child is not cooperative during shots or blood tests
- First-time parents of caring for a child with ASD may not be fully aware of child's wants or needs when he/she gets upset, which only contributes to more stress for everyone present

Persona #2: Guardian

Doting   Thoughtful   Considerate   Sensitive

Grace Sharp

"Everyone needs a house to live in, but a supportive family is what makes a home."

Age: 67
Work: Retired schoolteacher
Family: Widowed; one daughter and one grandson
Location: Newport Beach, CA
Tier: High-Level

Bio

Grace has worked as a kindergarten schoolteacher at Vejar Elementary School since 1995, and recently retired last year. Since then, she has moved down to live with her daughter and her daughter's family in Newport Beach. In her free time, she enjoys cooking and learning new recipes for her family to enjoy, and loves going on walks in the local park regularly. She has one grandchild, a five-year-old who was diagnosed with level 2 autism spectrum disorder (ASD), that she looks after most of the time, as her daughter and son-in-law both work full-time. However, she struggles to understand her grandson's repetitive behaviors at sudden moments, and wants to learn how to understand what he is thinking and feeling.

Scenario:

A few days after Grace moved in to her daughter's home, she attempts to have some bonding time with her grandson, Mikey, while his parents are away at work. She enters his room and asks him if he would like to take a walk with her around the neigborhood. He does not look at her at all, and only shakes his head repeatedly and vehemently. She mentions that it is very nice weather outside, but he continues his behavior. She feels confused, and a little saddened, as she really wanted to have this time with Mikey, but does not understand why he seems so averse to it. She leaves his room, and goes to search up information about his behavior online. Among many links, Google shows a website from CHOC that discusses behaviors for each of the three levels of ASD, and advice on what to expect. From this site, Grace learns that her grandson probably prefers a rigid schedule and does not like being with anyone he is not yet familiar with. Grace recalls that up until now, she has never met Mikey in person; and that for the short time she has been in the home, Mikey typically spends his time playing with his toys during the afternoon. Grace now understands why Mikey did not want to go out with her, and she feels that she understands her grandson a little better than before.

Goals

- Wants to better understand her grandson's wants and needs when he is upset, such as identifying the source of irritation and how to soothe him
- Would like to find easily accessible resources to learn more about common characteristics for children with ASD

Frustrations

- Difficult to communicate with grandson
- New technology (e.g., iPhones, tablets) is very intimidating to use; only familiar with using a computer

2.2 Scenarios

- Parent
    - Laura knows that she needs to take Bob, her child, to CHOC in order to get his yearly check-up, however, Bob has been diagnosed with ASD and does not like to be overstimulated. Prior to her visit she is directed to a website that will help her fill out a survey on the specifications that she wants for her child. The survey includes questions asking about room temperature, lighting, child's communication method, ect.. Laura is then able to print it out. When she then visits the hospital she provides the printed out survey to the receptionist at the front so they can be aware of the environment her child needs. Laura's visit goes on very smoothly because the nurses and the doctors understood how to take care of her child.
- Guardian
    - Grace knows that her grandson, Bill, has asperger syndrome but is not too sure about how to interact with him. She knows that Bill will lash out if you speak too loudly in front of him or if there are too many people crowding around him. She finds a website that better explains all the symptoms of Asperger syndrome. On this website, she reads up on how to better interact with her grandson as well as finding other resources to help her learn more.
- Child
    - Tom is a child diagnosed with Heller's syndrome (childhood disintegrative disorder). He has lost the skills in receptive language skills so he is not able to understand the language spoken to him. He is also expressing repetitive behavior and interest patterns. When he visits CHOC for his checkup, his mother gave him a tablet where he can use our website's coloring page feature while his mother is listening to the feedback from the doctor. This way, Tom will not feel bored or nervous while being in the hospital.
- Nurse
    - Peter is a newly certified nurse at CHOC and has been working there for 3 months. He has seen many types of children come into CHOC when he was training but has never directly interacted with them. He recently had an encounter with a kid diagnosed with ASD and did not know how to interact with the child accordingly, making the encounter awkward. Peter would like to not make any mistakes or assumptions next time so he googles up how to interact with kids who have high functioning autism. He comes across our website and finds more training videos and other resources on how to interact with children. The next time a child who has ASD comes onto his floor of the hospital Peter knows how to act and the child eventually is not so scared.

3. System Features

3.1 Essential Requirements

3.1.1 Functional Requirements

3.1.1.1 Requirements List

ID: FR1
TITLE: Create account
DESCRIPTION: Users could choose to create an account if they want to be able to save and retrieve the surveys the had previously filled out
SOURCE:
FIT CRITERION: Users can create an account that will automatically be approved by the system
RATIONALE: Failure to approve accounts will result in users unable to view/save their survey progress or history
DEPENDENCIES: FR2 [Log-in]

ID: FR2
TITLE: Log-in on the website
DESCRIPTION: Users will be able to log in onto the website utilizing accounts they created.
SOURCE:
FIT CRITERION: Users need to be able to login to view/save their survey progress or history
RATIONALE: Failure to login will result in users unable to access previous completions of surveys or currently in-progress surveys
DEPENDENCIES: FR1 [Create account]

ID: FR3
TITLE: View training videos
DESCRIPTION: Users will be able to access and watch training videos on the website
SOURCE:
FIT CRITERION: The website will provide embedded training video for users to watch
RATIONALE: Failure to provide these videos limits access to helpful videos for medical staff to educate themselves in dealing with a patient with ASD.
DEPENDENCIES: None

ID: FR4
TITLE: Interact with coloring book
DESCRIPTION: Users will be able to open a digital coloring book where they choose from a selection of blanks canvas and color on them.
SOURCE:

FIT CRITERION: The system provides a range of uncolored images for the user to choose from, and will be seen as completed once the user determines it completed.
RATIONALE: Failure to provide access to this activity for children will prevent them from viewing the hospital as an enjoyable space to be in.
DEPENDENCIES: None

ID: FR5
TITLE: Look up resources
DESCRIPTION: The website will provide resources for how to interact with children of autism for users to access.
SOURCE:
FIT CRITERION: The website provides text document of resources for users to use
RATIONALE: Failure to provide resources will severely limit the main purpose of the system.
DEPENDENCIES: None

ID: FR6
TITLE: Complete pre-appointment surveys
DESCRIPTION: The website will provide a survey for users to complete that will accurately gauge the appropriate environment needed for the patient.
SOURCE:
FIT CRITERION: The website will notify the user of the completion of the survey with a receipt sent out of the user.
RATIONALE: The survey will remain incomplete until the user finishes it or discards it.
DEPENDENCIES: None

3.1.1.2 User Stories
- As a parent with children that have ASD, I want to be able to communicate my children's need to their doctor's office ahead of time so that my child can complete his visit to the hospital without them being too stimulated by the environment.
- As a guardian of a child with ASD, I want to be able to learn more about the child's condition and needs to better understand and communicate with the child.
- As a child with ASD, I want to not be overwhelmed by the environment when visiting the doctor's office for an appointment.
- As a nurse with a patient that has ASD, I want to find information that would help me better interact with my patient to ensure that their appointment goes as smoothly as possible.

3.1.2 Non-functional Requirements

3.1.2.1 Attributes
ID: NFR1
TITLE: Maintaining Security
DESCRIPTION: The software shall use security to ensure users' privacy surrounding their personal medical information. Users will have a profile associated with them and secured by a username and password. This will give users a sense of security over their information and in using this site.
SOURCE:
FIT CRITERION: Security will be maintained as long as the provided username and password meets the requirements given to ensure a secure account.
RATIONALE: Failing to provide security can lead to legal action regarding patient privacy and other HIPAA violations.
DEPENDENCIES:

ID: NFR2
TITLE: Ensure Maintainability
DESCRIPTION: This software will be developed in a manner that will ensure maintainability, even after the website is completely developed. The application will be potentially passed on CHOC and integrated into their systems after the completion of this application.
SOURCE:
FIT CRITERION: The website will run in a functional manner after the project period is over, and the project itself is completed.
RATIONALE: Failure to maintain the application will result in the end of this application's life span.
DEPENDENCIES:

ID: NFR3
TITLE: Deliver Accessibility
DESCRIPTION: This software will be developed as a web application, to further accessibility through both computer and phone's web browser. This application will not require a download for mobile devices to allow ease of access.
SOURCE:
FIT CRITERION: The application will be accessible through web browsers as to not require users to have to download an external application.
RATIONALE: Failure in maintaining accessibility will result in users not being able to access records or begin to fill one pre-appointment.
DEPENDENCIES:

ID: NFR4
TITLE: Deliver Navigability
DESCRIPTION: This website will be designed in a manner that appeals to users of all ages and technical skills, and in a way that will be simple and easy to navigate.

SOURCE:
FIT CRITERION:
RATIONALE: Failure in creating a easy to navigate application will result in users not be able to find the appropriate services they need from the application
DEPENDENCIES:

3.1.2.2 Visual Properties of System
The website will have a colorful, yet, soft color scheme. Kylie Castro has approved that CHOC colors can be used in the main framework of the website with underlying natural colored highlights, such as orange.