TED UNIVERSITY

2023 Fall Term

CMPE 491 Senior Project

Project Specifications Report

FocuZone

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Table of Contents

1 Introduction

This introduction provides background information for the rest of the document. It briefly describes the project, the constraints, and the professional and ethical issues.

ADHD has a massive impact on some individuals' life. Its side effects are mostly known as hyperactivity disorder and by that distraction or less determination. Although it can be treated by medicine or therapy individuals might need an extra support while studying or completing their daily life tasks.

To provide support to people with ADHD, we came up with an app called FocuZone. FocuZone will not only help people with ADHD manage their tasks. It can be used by everybody having a hard time focusing on activities or their studies.

1.1 Description

Project title: FocuZone - Focus and Productivity App for ADHD individuals

FOCUZONE

FocuZone intends to benefit individuals with ADHD (Attention Deficit Hyperactivity Disorder) make their everyday routine more productive and smoother. The application offers four fundamental features that enable users with ADHD to obtain more effective and efficient working patterns, also application goals to increasing their focus in the surrounding in which the user desires to work.

To-do List: The user will be able to track their daily goals with the help of the list that they have created, and they will also be able to organize these goals more easily. Additionally, the user will be informed about the upcoming events and tasks with the support of a notification. Hence, the user will be able to manage and control their daily work more efficiently. Along these planning and reminder opportunities, users will be able to approach their daily work with deep focused and disciplined technique.

Study Assistant: This feature allows the user to create personalized study periods. The user can set their own work and break times, thus creating a work schedule that suits them completely. Break reminders help them regulate their work and break cycles. When work time ends and break time is completed, the user will receive alerts. In this way, it helps the user to focus efficiently without disrupting the workflow. As a result, it helps a person achieve a more productive study session by creating a study pattern specific to their focus time.

Sound Level Meter: This feature can measure the sound levels in the user's environment and evaluate the possibility of distraction in this environment. The user is informed about high sound levels or noise that may distract attention. Thus, it helps create a more productive working environment.

Working Environment Photo Analysis: This feature allows the user to take a photo of the environment in which they will work and then analyse the photo. As a result of this analysis, the colour scale is extracted and objects that may cause distraction are detected. On the other hand, it offers colour suggestions to the user and makes suggestions about changing the location of objects. Thus, it helps to create a more efficient working environment so that the user is not distracted.

Project Goals:

- Ensure that the individual with ADHD has a more regular work plan and routine.
- Enable user to create more efficient work patterns and working skills.
- Improve the focus by identifying environments and objects that may distract.

FocuZone is the representative of a project that can significantly facilitate the daily lives of individuals with ADHD. The application is designed to help individuals with neurological differences such as ADHD struggle with the difficulties they experience in their daily lives, such as focusing, work organization and productivity.

1.2 Constraints

1.2.1 Economic Constraints

Project Budget: Within the scope of the FocuZone project, a budget must be created that covers all expenses from the beginning to the delivery of the project.

Cost of Human Work: Determining a budget to cover the salaries of the team working on the project and the expenses of carrying out the project.
Cost of Materials and Equipment: During the construction of the project, expenses on equipment or materials used in the project should be taken into consideration and a budget should be allocated in advance accordingly.

User Payment: FocuZone will be a free application to all users.

1.2.2 Environmental Constraints

Since the general purpose of the FocuZone project is for ADHD patients who are disturbed by environmental factors and lose their focus, this project has been designed very carefully regarding all kinds of environmental constraints. For example, carbon footprint related to server operations and energy consumption by using many devices are considered carefully in this application.

1.2.3 Social Constraints

FocuZone should ensure that the app is user-friendly and is usable by, even if they have ADHD or not. Non-ADHD users can use the app for basic study and focus sessions whenever the app is needed. Features like to-do list and study assistant can help users without ADHD keep track of their studies and have decent study sessions.

1.2.4 Political Constraints

FocuZone will adhere to local, national, and international regulations and will comply with the accessibility rules which determined by government to which it is affiliated.

1.2.5 Ethical Constraints

As you can examine in more detail in section 1.3 of this documentation, the FocuZone application is very careful in the areas of app reliability, security issues, professional development, user consent, user data privacy and transparency. The camera/gallery and microphone will not be turned on without the user's approval and will not be stored without the user's permission. It should also be noted that FocuZone is not as accurate as professional support.

1.2.6 Health and Safety Constraints

Since the application was planned with the promise that it would help the ADHD patient focus, any potential distraction or trigger factor should be avoided as much as possible. The design of the application and the use of colors in it should be carefully determined and should not distract the attention of the ADHD patient.

1.2.7 Time Constraints

It is necessary to determine the time required for each task from the beginning to the end of the project. It is necessary to work task-oriented by dividing this time into the necessary sprints and to finish the tasks by the specified due date. In order to achieve that, project backlog must be checked regularly by the project team.

1.2.8 Manufacturability Constraints

FocuZone will first be implemented for use on Android phones, and if the application finds its place in the market with great interest, making it suitable for iOS will be discussed.

1.2.9 Sustainability Constraints

As the application grows in order to ensure the sustainability of the application, in-app updates will be made available, and the project will be developed in line with user feedback.

1.3 Professional and Ethical Issues

Addressing the professional and ethical issues of FocuZone is important for its success and responsible development.

1.3.1 App Reliability

App reliability is an important aspect of professional development since it ensures that users can depend on the app's features to assist study sessions, keeping a track of tasks and keeping the user in a non-distractive environment. These features are mostly important for users with ADHD who might be relying on the app to main focus, however it can be used by users without ADHD to focus on their studies as much as possible as well.

1.3.2 Security Issues

Security issues cannot be underestimated since it an important aspect for the app to be professional. FocuZone will have a decent security to protect user data in terms with the laws and regulations of user privacy and preventing unauthorized access to functional devices of the phone such as the microphone or the camera/gallery.

1.3.3 Professional Development

Developing the app professionally is important to ensure maintainability and effectiveness. Developing team should be aware of the latest practices of ADHD and its management. Keeping track of new research and implementing the app's features according to them is essential. With these, the development team can improve the app positively to impact the lives of users with ADHD using professional development.

1.3.4 User Consent

User data should not be collected until the user has agreed to share their data for usage in the app for sign-up or give access to use the user's phone microphone and camera/gallery. Before getting access to user data, users should be presented with a terms of use and privacy policy where they can see how their data is necessary and how they will be used.

1.3.5 User Data Privacy

Data privacy or in our case protection is essential for user and app security. Data that has been gathered from the users with their consent must be encrypted while in transfer or while in storage in the database for maximum security purposes. Under the ethical rules the data should only be used inside the application. Unauthorized access to user data or device should be prevented as much as possible for user safety and security reasons.

1.3.6 Transparency

To be transparent as much as possible the app should inform users about its capabilities and limitations. Users should be aware that FocuZone may not be able to help them with their ADHD at all times since its an app that is more like a supportive tool rather than a provider for medical advice or treatment. Also, users should know that the app's effectiveness may depend on the individual's experiences.

2 Requirements

2.1 Mobile Application Requirements

- The interface of the application should be easily usable by every user. Therefore, the UI/UX design of the interface needs to be simple, understandable, and appealing to the eye.

- When the user enters the application, the user must create an account. It is necessary to access the register screen from the login screen. After completing the necessary sections on the registration screen, they will be able to log in with their account after confirming the confirmation e-mail.
- After this, the first login to the application will be made and the features of the application should be introduced to the user with a few screens. Then we come to our first feature, the To-Do List feature. Bottom navigation bar will be made available to make switching between these features easier.

2.2 Feature-Based Requirements

2.2.1 To-Do List

- Ensuring that users can easily create tasks. And to allow users to make their own customizations such as time, name and description while creating this task.
- This screen should be user friendly. It needs to be free of confusion.
- The user should receive some notifications close to the end times given for the tasks, but these notifications should not be given frequently because too many notifications may cause distraction.

2.2.2 Study Assistant

- This feature should have a very simple screen appearance and serve its direct purpose.
- Here, the user must be able to create his own special working periods where they can set their own working and break times.
- Here, the user will be able to use some of the working period patterns suggested by our application, in addition to creating their own working periods.
- The user must receive a warning when the working time is completed, and the break period is over in these working periods. This is to ensure that it is not disconnected from the working period.

2.2.3 Sound Level Meter

- In this feature, when the user starts the sound level meter, they should be able to see the sound level in the environment on the screen with a beautiful sound meter design and understand whether they are in an environment that may cause distraction, in line with the limits set in our application.
- Limits that may cause distraction should be determined on the application as a result of our research, and this part should be conveyed to the user as simply as possible.

2.2.4 Working Environment Photo Analysis

- The user must be able to upload the photo of the environment they took to the application.
- In this section, the colour scale of the uploaded photo should be shown, feedback should be given whether this colour scale is distracting, and a colour suggestion should be made at the same time.
- At the same time, objects that may cause distraction should be detected with image detection and a recommendation should be made to change their location.

2.3 Hardware Requirements

- The application will be available on Android devices.
- It must be compatible with all screen sizes on available devices.

2.4 Database and Data Analysis Requirements

- A database should be created that can meet the requirements that are not too large for the application.
- For the security of the data held, the data kept must be encrypted.
- This data must be made in a way that only authorized persons can access it.
- An advanced image processing structure is needed to extract the colour scale of the photo uploaded to the application and for object detection. The volume level and other information to be sent to the application must also be kept in the database for a certain period of time.

- In order for the information to be kept in the database to not take up unnecessary space, certain retention periods and regular cleaning optimization are required.

2.5 Security Requirements

- Special permissions required in the application, such as turning on notifications and accessing the gallery, will be given by the user and with their knowledge.
- User's personal information, photographs, and other information should never be shared with third parties.

2.6 Performance Requirements

- For the application to run smoothly, the fastest routes should be chosen during requests and redirects, and the interfaces should be kept simple to prevent unnecessary hang-ups.
- Unnecessary codes should be avoided when writing the application. Thus, unnecessary workload is not imposed while the application is running.
- The application should initially be created to support many users. If the number of users increases in the future, the capacity should be easily increased in this direction.
- Data transfer rate should be brought to the most optimum level.
- While the application is running in the background, it should be run at the lowest possible level in terms of battery usage, so that it will also be beneficial for the health of the phone.
- The application should be updated in line with future requirements. Thus, maintenance can be carried out without deteriorating the user's experience.
- The application must be able to make backups at regular intervals.

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