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Staysmiling: An Android Application to Relieve Stress

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Abstract— ***A key challenge for mobile health is to develop a new technology that can assist individuals in maintaining a healthy life style. Now a day's peoples are so busy in their daily schedules and not having enough time to contribute physically all joys & sorrows. At last they are out of society and finally nowhere in the world and went to depression. Peoples are taking odd steps in unnatural manner by facing any long depression, long frustration, cowardliness, and failures in life, related to study, related to married life as they are not getting any proper solution or consultation. If the patient is in depression status he/she has to visit hospital frequently it seems to be tiring and time consuming for both doctor and patients. Stay smiling app which will aid/assist the people who needs some counselling, the people who needs to be monitored, given special attention to come out of their stress/addiction/depression. It also aids/assists the psychiatrist or the counsellor to keep track of their patients moods, their feelings at frequent intervals through this app, give the patients motivational/inspirational videos/quotes, remind them and keep them in positive mood. When the patient repeats after 15days/1month,each and everyday's feelings/moods and all the questionnaires(framed by the counsellors) answered will be accessed, for better understanding of the pattern of mood swings and how the patients more coping-up during that period. If that patient goes to long depression he/she can chat with any consultant as per the different categories and share their views so that they can get out of taking any odd steps and patients take care of them.***

Keywords— Long depression, cowardliness, stress/addiction/depression, psychiatrist, counselling, Counsellor, Android

I. INTRODUCTION

Our lifestyle choices have a deep impact on our personal health. For example, our sleep, socialization and exercise patterns are connected to the presence of a wide range of health related problems such as, high-blood pressure, stress, anxiety, diabetes and depression [1]. Human stress represents an imbalanced state of an individual and is triggered when environmental demands exceed the regulatory capacity of the individual. Because of its unhealthy effects, stress detection is an ongoing research topic among both psychologists and engineers and has been applied to lie detection tests , emergency call identification , and the development of better human computer interfaces Various features associated with stress, including hormone responses, physical appearance, speech, and physiological responses, have been utilized for stress detection. Among these stress features, physiological responses are attracting an increasing amount of attention However; traditional physiological-based detection methods are contact methods, i.e., sensors must be attached to individuals during feature measurement, which is not convenient for operation. Stress is a common term used by people when they encounter a problem in their life. This problem could be anything from the work environment to the death of a family member. However, when you hear someone mention that they are 'stressed out', the likelihood is that this person does not know the full extent of what stress actually is. Stress, in biological terms refers to the after effects of a person failing to respond properly to an event that has occurred in their life, whether physical or emotional. Imagine a person encountering a problem and bottling up these emotions inside without releasing them. This behaviour brings stress upon the body and gets worse with time [3].

A. Overview of Stress

Stress is everywhere, but as a relatively new phenomenon. Stress is what you feel when you have to handle more than you are used to. When you are stressed, your body responds as though you are in danger. It makes hormones that speed up your heart, make you breathe faster, and give you a burst of energy. Some stress is normal and even useful. Stress can help if you need to work hard or react quickly. But if stress happens too often or lasts too long, it can cause health problems.

B. Defining Stress

The wider the usage of the term 'stress', the more exclusive its meaning. Modern definitions of stress all recognize that it is a personal experience caused by pressure or demands on an individual, and impacts upon the individual's ability to cope or rather, his/her perception of that ability. Work-related stress occurs when there is a mismatch between the demands of the job and the resources and capabilities of the individual worker to meet those demands. Stress is often described as a feeling of being overloaded, wound up tight, tense and worried. We all experience stress at times. It can sometimes help to motivate us to get a

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task finished, or perform well. But stress can also be harmful if we become over-stressed and it interferes with our ability to get on with our normal life for too long.

C. Effects of Stress

Sometimes recognize the short-term effects of stress but may not be aware of how harmful the long-term effects can be[4].

Short-Term Effects
Mind becomes alert - ready to act or react
Dilated pupils
Dry mouth
Tension in neck and shoulders
Faster breathing
Faster heart rate
Higher blood pressure
Sweaty palms

Long-Term Effects
Headaches
Dizziness
Blurred vision
Ulcers
Hyperventilation, asthma, palpitations
High blood pressure
Heart and artery disorders
Nervous indigestion
Disturbed sleep patterns

D. Symptoms of Stress

Common symptoms of stress include:

A fast heartbeat
A headache
A stiff neck and/or tight shoulders
Back pain
Fast breathing
Sweating, and sweaty palms
An upset stomach, nausea, or diarrhea

Over time, symptoms of stress are:

Immune system: Constant stress can make you more likely to get sick more often. And if you have a chronic illness such as AIDS, stress can make your symptoms worse.
Heart: Stress is linked to high blood pressure, abnormal heartbeat (arrhythmia), blood clots, and hardening of the arteries (atherosclerosis). It's also linked to coronary artery disease, heart attack, and heart failure.
Muscles: Constant tension from stress can lead to neck, shoulder, and low back pain.
Stomach: If there is stomach problems, such as gastro esophageal reflux disease (GERD), peptic ulcer disease, or irritable bowel syndrome, stress can make your symptoms worse.
Reproductive organs: Stress is linked to low fertility, erection problems, and problems during pregnancy, and painful menstrual periods.
Lungs: Stress can make symptoms of asthma and chronic obstructive pulmonary disease (COPD) worse.
Skin: Skin problems such as acne and psoriasis are made worse by stress.

Emotions or thinking symptoms of stress are
Feel cranky and unable to deal with even small problems.
Feel frustrated, lose your temper more often, and yell at others for no reason.

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Feel jumpy or tired all the time.
Find it hard to focus on tasks.
Worry too much about small things.
Feel that you are missing out on things because you can't act quickly.
Imagine that bad things are happening or about to happen.

E. Causes of Stress

A lot of things can cause stress. stress when we go on a job interview, take a test, or run a race. These kinds of short-term stress are normal. Long-term (chronic) stress is caused by stressful situations or events that last over a long period of time, like problems at work or conflicts in your family. Over time, chronic stress can lead to severe health problems.

Personal problems that can cause stress

Your health: Especially if you have a chronic illness such as heart disease, diabetes, or arthritis

Emotional problems: Such as anger you can't express, depression, grief, guilt, or low self-esteem

Your relationships: Such as having problems with your relationships or feeling a lack of friendships or support in your life

Major life changes: Such as dealing with the death of a parent or spouse, losing your job, getting married, or moving to a new city

Stress in your family: Such as having a child, teen, or other family member who is under stress, or being a caregiver to a family member who is elderly or who has health problems

Conflicts with your beliefs and values: For example, you may value family life, but you may not be able to spend as much time with your family as you want.

Social and job issues that can cause stress

Your surroundings: Living in an area where overcrowding, crime, pollution, or noise is a problem can create chronic stress.

Your social situation: Not having enough money to cover your expenses, feeling lonely, or facing discrimination based on your race, gender, age, or sexual orientation can add stress to your life.

Your job: Being unhappy with your work or finding your job too demanding can lead to chronic stress. Learn how to manage job stress.

Unemployment: Losing your job or not being able to find work can also add to your stress level.

F. Types Of Stress

The different types of stress are:

1) Acute Stress: It is the most common form of stress. It is inducted as a reaction to an immediate threat, anticipated demands, or pressures of the recent past or of the near future. The threats or demands can be real or perceived. Examples include rushing to meet a project deadline, stressing over an exam, worrying about the fender-bender you just had, etc. Because it is short term, acute stress doesn't have enough time to do the extensive damage associated with long-term stress. However, it can pop up in anyone's life, but it is highly treatable & manageable.

2) Chronic Stress: It involves situations that are not short-lived. It is the perpetual stress that wears on people continuously. It often develops when the individual doesn't see a way out of a bad situation. Typically, when the individual has no hope, they stop looking for a solution. Examples of chronic stress include relationship problems, workplace pressures, & financial or health worries.

3) Episodic Stress: It is the type of stress that develops when continuous disorganization, chaos, & crisis is a way of life for the individual. For example, Type A's generally suffered from episodic stress. These are the type of people who tend to always be in a rush, but always late. They often take on too many demands, & they can't organize the overabundance of tasks they have accumulated. Episodic stress can also ensue when an individual constantly worries. These individuals tend to be pessimistic, which causes them to be anxious & sometimes depressed.

Situations that are considered stress provoking are known as stressors. Stress is not always a bad thing. Stress is simply the body's response to changes that create taxing demands. Many professionals suggest that there is a difference between what we perceive as positive stress, and distress, which refers to negative stress. In daily life, we often use the term "stress" to describe negative situations.

4) Positive Stress: Characteristics:

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Motivates, focuses energy
Is short-term
Is perceived as within our coping abilities
Feels exciting
Improves performance

Examples
Receiving a promotion at work
Starting a new job
Marriage or commitment ceremony
Buying a home
Having a child

5) Negative Stress: Characteristics:
Causes anxiety or concern
Can be short or long-term
Is perceived as outside of our coping abilities
Feels unpleasant
Decreases performance
Can lead to mental and physical problems

Examples
The death of a partner
Filing for divorce
Losing contact with loved ones
The death of a family member
Hospitalization (oneself or a family member)
Injury or illness (oneself or a family member)
Being abused or neglected

G. Objective of Project

The main goal of the project is to relieve the stress by using stay smiling app. It will give the motivational/inspirational videos/quotes to stress patients remind them and keep them in positive mood. When the patient repeats after 15days/1month,each and everyday's feelings/moods and all the questionnaires(framed by the counsellors) answered will be accessed, for better understanding of the pattern of mood swings and how the patients more coping-up during that period. If that patient goes to long depression he/she can chat with any consultant as per the different categories and share their views so that they can get out of taking any odd steps and patients take care of them.

H. Scope of Project

In the existing system the mentally stressed patients were getting only relaxation skills and some meditation and exercise tips from those apps and they were not getting proper advises to relieve their stress but stay smiling app which will play major role in relieving the stress this app will give relaxation skills if the patient does not satisfy from this he/she can chat with the stress counsellors and they will get advises from stress counsellors to come out of their stress level.

I. Motivation

This app will be more benefit for stress patients. It involves 3 stages to relieve the stress for each patient that are:
It will be having questionnaires and answers for patients to know about their stress level.
It will give some online links to patients to watch motivational videos and read some inspirational quotes to come out of their stress level.
This app is having chatting system the mentally stressed patients can chat with the stress counselors and they get advises from them to relieve their stress.
In order to reduce the patients stress level and keep them always in positive mood by giving online links of motivational videos, songs and inspirational quotes. If they want more relaxation means they can chat with the stress counsellors to get advises from

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them.

II. LITERATURE SURVEY

A healthy way to handle work place stress through Yoga, Meditation and Soothing Humor

The most decisive factor is the productivity of the work force it is the success of an organization is concerned. The psychosocial well being of the employees is dependent on the productivity. Work and the workplace emphasizes many issues related to organizational psychology including job satisfaction, quality of work life, human factors, work conditions, performance appraisal, motivation and leadership, and the physical and mental health of workers.

Sources of academic stress – a study on management students

The objective of this study is to explore the components of academic stress among the post graduate management students. The study further tries to make an in-depth investigation into each component of academic stress such as curriculum and instruction, team work related issues, assessment, and placement, to identify the micro issues that are causing stress.

How is mortality affected by money, marriage, and stress?

It is believed that the length of a person's life depends on a mixture of economic and social factors. Yet the relative importance of these is still debated. We provide recent British evidence that marriage has a strong positive effect on longevity. Economics matters less. After controlling for health at the start of the 1990s, we cannot find reliable evidence that income affects the probability of death in the subsequent decade. Although marriage keeps people alive, it does not appear to work through a reduction of stress levels.

III. SYSTYEM ANALYSIS

System analysis is the study of the entities which are interacting including computer system analysis. This system analysis field is almost closely related to requirement analysis to make better decision and to identify a better course of action. It applies methodology to analysis of system involved to form an overall picture.

A. Existing System

A key challenge for mobile health is to develop a new technology that can assist individuals in maintaining a healthy life style. Now a day's peoples are so busy in their daily schedules and not having enough time to contribute physically all joys & sorrows. At last they are out of society and finally nowhere in the world and went to depression. Peoples are taking odd steps in unnatural manner by facing any long depression, long frustration, cowardliness, and failures in life, related to study, related to married life as they are not getting any proper solution or consultation. If the patient is in depression status he/she has to visit hospital frequently it seems to be tiring and time consuming for both doctor and patients. Stay smiling app which will aid/assist the people who needs some counselling, the people who needs to be monitored, given special attention to come out of their stress/addiction/depression. It also aids/assists the psychiatrist or the counsellor to keep track of their patients moods, their feelings at frequent intervals through this app,give the patients motivational/inspirational videos/quotes, remind them and keep them in positive mood. When the patient repeats after 15days/1month,each and everyday's feelings/moods and all the questionnaires(framed by the counsellors) answered will be accessed, for better understanding of the pattern of mood swings and how the patients more coping-up during that period. If that patient goes to long depression he/she can chat with any consultant as per the different categories and share their views so that they can get out of taking any odd steps and patients take care of them. When the patients used to chat with counsellor one timer will begin which will say how much time the consultant spent for the particular user as per the time billing will be calculated.

1) *eCBT*: CBT Calm helps people who are feeling stressed and want to learn relaxation skills. It assesses your stress level, provides relaxation skills, and also includes links to online resources for stress and anxiety.

Disadvantages: Chargeable

2) *Stress Tracker:* Stress Tracker is a tool to help you take charge of your emotional, mental, and physical health. Track your stress and improve you coping skills with this useful app.

Disadvantages: Chargeable for android mobiles and free for iphone

3) *Mindfulness Meditation:* This app hosts "mindfulness-based technique for stress-reduction with scientifically proven health benefits. Guided mindfulness meditations written and narrated by Stephan Bodian, author of the Meditation for Dummies." This app includes short and long meditations, ranging from 5 minutes to 40 minutes. There are also deep relaxation exercises to help de-stress after a long day at school or at work. There is no previous experience with meditation necessary.

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Disadvantages: Chargeable and suggesting only meditation and exercise as solution to stress

Disadvantages of Existing System

Stress patients were getting limited relaxation skills.
The above applications are chargeable that's why people can't afford these applications.
The stress patients were not satisfying for above relaxation skills if they were not getting proper solution to their stress.
People did not know which type of the stress they are having and getting proper consultation.

B. Proposed System

In my proposed system a stay smiling app which will aid/assist the people who needs some counselling and who needs to be monitored for relieve the stress

Advantages of Proposed System

Behalf of the counsellors the app will interact with the patients/addicts through some basic questionnaires and answers to know their stress type.

This app will give some online links to watch motivational or inspirational videos, quotes and songs to relieve the patient's stress.

If the patient doesn't satisfy for questionnaires and answers or motivational videos, quotes,songs means he can go to next stage to contact the doctors.

Stay Smiling app which will provide the peoples to chat with any nearby consultant as per the different categories and share their views so that they can get out of taking any odd steps.

IV. SYSTEM REQUIREMENTS AND SPECIFICATION

A software requirements specification (SRS) is complete description of the behavior of the system to be developed. The SRS document which describes what the proposed system should process without describing how software will do it. The SRS is a consistent formal document which is the output of the requirement analysis phase whose input is ideas in the mind of the users.

A. Overall Description

1) *System Perspective*: The aim towards the assurance is provided to help the stress patients to get relive with chatting to counsellor using the stay smiling app.
2) *System Function:* The key idea is overall system is divided into stress counsellor and patient (user) Home Screen. user will notify about the stress and send it to counsellor .user will have the right to access list of counsellor, Notifying, and chatting. But the stress counsellor has right to accept or deny notification of the patient.
3) *Constraints*

User will login to the app
User will obtain list of Counsellor by search option
User will notify to counselor through questionnaires
Counsellor get the notification of patient
Counsellor will accept or deny the notification
Counsellor chat with patient and also in order to relieve stress by motivational videos ,quotes.

B. Specific Requirements

This section of the SRS should contain all the software requirements to a level of detail that is sufficient to enable designers to design a system to satisfy those requirements. It also helps tester to design their test cases to verify whether system satisfy those requirements. There are requirements like functionality requirements; non-functionality requirements design constraints and different interfaces to the project.

1) *Functional Requirements:* Functionality requirements are those that refer to the functionality of the system. That is, what services it will provide to the user. Non-functional (supplementary) requirements pertain to other information needed to produce the correct system and are detailed separately.

User login to system
User can view all questionnaires
User has list of counselor
User notify counselor for chatting
Counsellor will login to system
Counsellor will get notification sent by user

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Counsellor has to accept the notification by obtaining data about the patient
Counselor chat with the patient based questionnaires and feedback to the user about the stress.

2) *Non-functional Requirements:* These are requirements that are not functional in nature; these are constraints within which the system must work.
Security: The user and counsellor is validated by their username and password
Usability: There is continuous use of internet connection
The program must be self contained so that it can easily be moved from one system to another system
The system should always have internet connection
The system should be scalable to support multi authority
Capacity, Data confidentiality, availability

3) *Software Requirements*
Android Studio
Android SDK5.0.8/4.X
SQLITE
Dream viewer
Xampp

4) *Hardware Requirements*
Android Mobile
Version- 4.4.2
RAM-1GB
ROM-8GB

V. SYSTEM DESIGN AND DEVELOPMENT

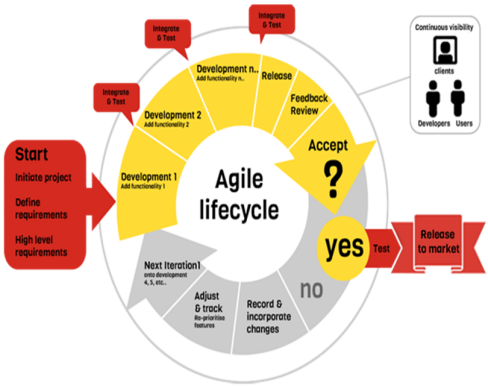
Design is one of the important phases of software development. The purpose of design phase is to plan a solution of the problem specified by the requirement document. This phase is the first step in moving from problem domain to solution domain. The design of the system is perhaps is most critical factor affecting the quality of the software and has a major impact on the later phases, particularly testing and maintenance. The output of this phase is design document

A. Design Considerations

This section describes many of the issues which are needed to be addressed.
General Consideration
Our system runs on android mobile
All the requests and replies are having predefined formats

B. Development Method

The development method followed in this project is agile method. Agile SDLC model is a combination of iterative and incremental process models with focus on process adaptability and customer satisfaction by rapid delivery of working software product. Agile Methods break the product into small incremental builds. These builds are provided in iterations. Each iteration typically lasts from about one to three weeks. Every iteration involves cross functional teams working simultaneously on various areas like planning, requirements analysis, design, coding, unit testing , and acceptance testing . At the end of the iteration a working product is displayed to the customer and important stakeholders.



Following are the Agile Manifest principles:
Individuals and interactions: In agile development, self-organization and motivation are important, as are interactions like co-location and pair programming.
Working software: Demo working software is considered the best means of communication with the customer to understand their requirement, instead of just depending on documentation.
Customer collaboration: As the requirements cannot be gathered completely in the beginning of the project due to various factors, continuous customer interaction is very important to g et proper product requirements.
Responding to change: Agile development is focused on quick responses to change and continuous development.

Advantages of Agile Methodology
The team does not have to invest time and effort and finally find that by the time they delivered the product, the requirement of the customer has changed.

Frequent communication with customer representative leaves no space for guesswork.

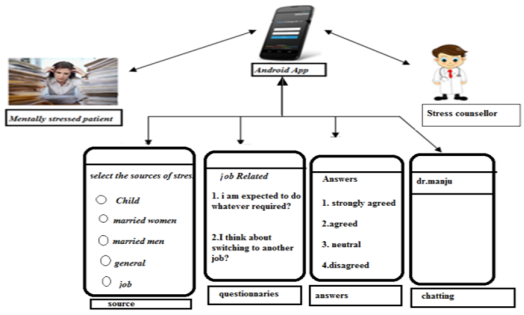
The documentation is crisp and to the point to save time.

The end result is the high quality software in least possible time duration and satisfied customer

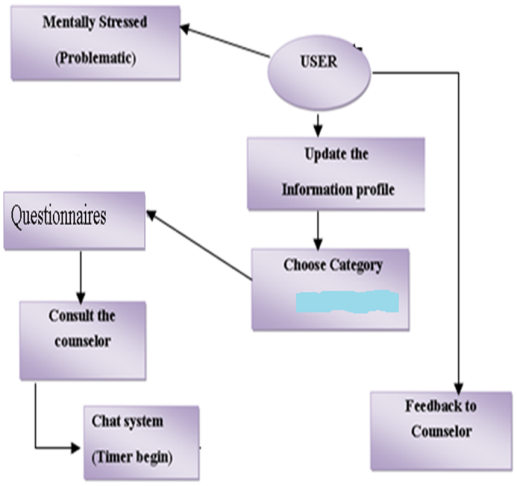
C. Architectural Strategies
This section describes decision and strategies that affect the overall organization of the system and its higher level structures. These strategies will provide into the key abstraction and mechanisms used in the system architecture

1) *User Interface Paradigm*: The GUI of application contains separate home screen for user and counsellor .the user Login Screen, counsellor Home Screen, counsellor Login Screen, counsellor Home Screen, Cloud server.
2) *Error Detection and Recovery*: Android SDK (AVD Manager) helps us to fix the build errors more quickly. The Error log window displays a list of errors generated during build; Android SDK has an integrated debugger to correct errors.

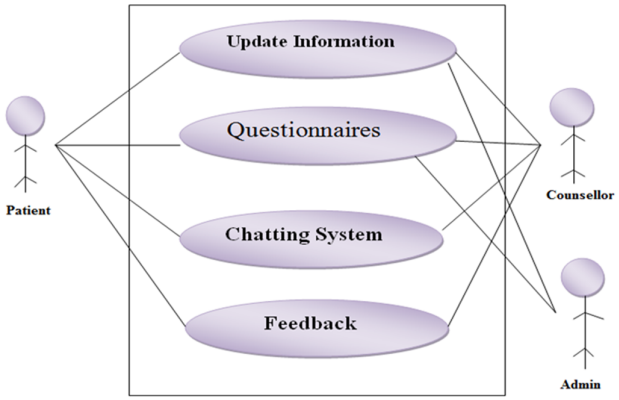
D. System Architecture
The architecture design process is concerned with establishing a basic structural framework for a system. It involves identifying the major components of the system and communications between these components. Large systems are always decomposed into sub-systems that provide some related set of services. The initial design process of identifying these subsystems and establishing a framework for subsystem control and communication is called architecture design and the output of this design process is a description of the software architecture



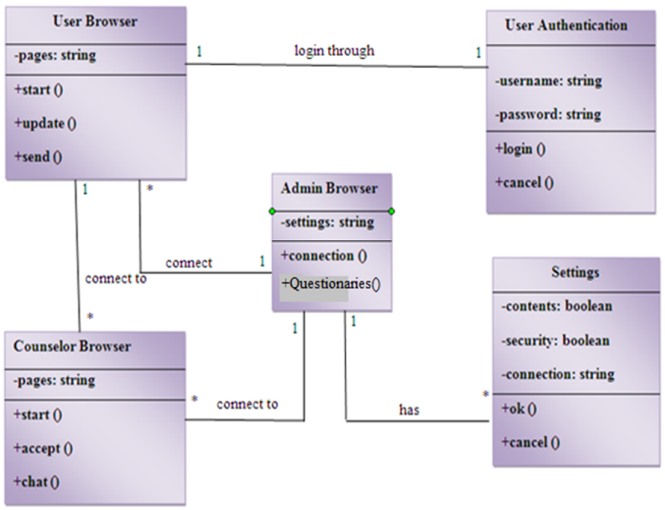
E. Dataflow Diagram
A Data Flow Diagram (DFD) is a graphical representation of the flow of data through an information system. Data flow models are used to show how data flows though a sequence of processing steps. The data is transformed at each step before moving on to next step.



F. Use Case Diagram



G. Class Diagram



VI. CONCLUSION

This app will be more benefit for stress patients. It involves 3 stages to relieve the stress for each patient that are:
It will be having questionnaires and answers for patients to know about their stress level.
It will give some online links to patients to watch motivational videos and read some inspirational quotes to come out of their

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This app is having chatting system the mentally stressed patients can chat with the stress counsellors and they get advises from them to relieve their stress.

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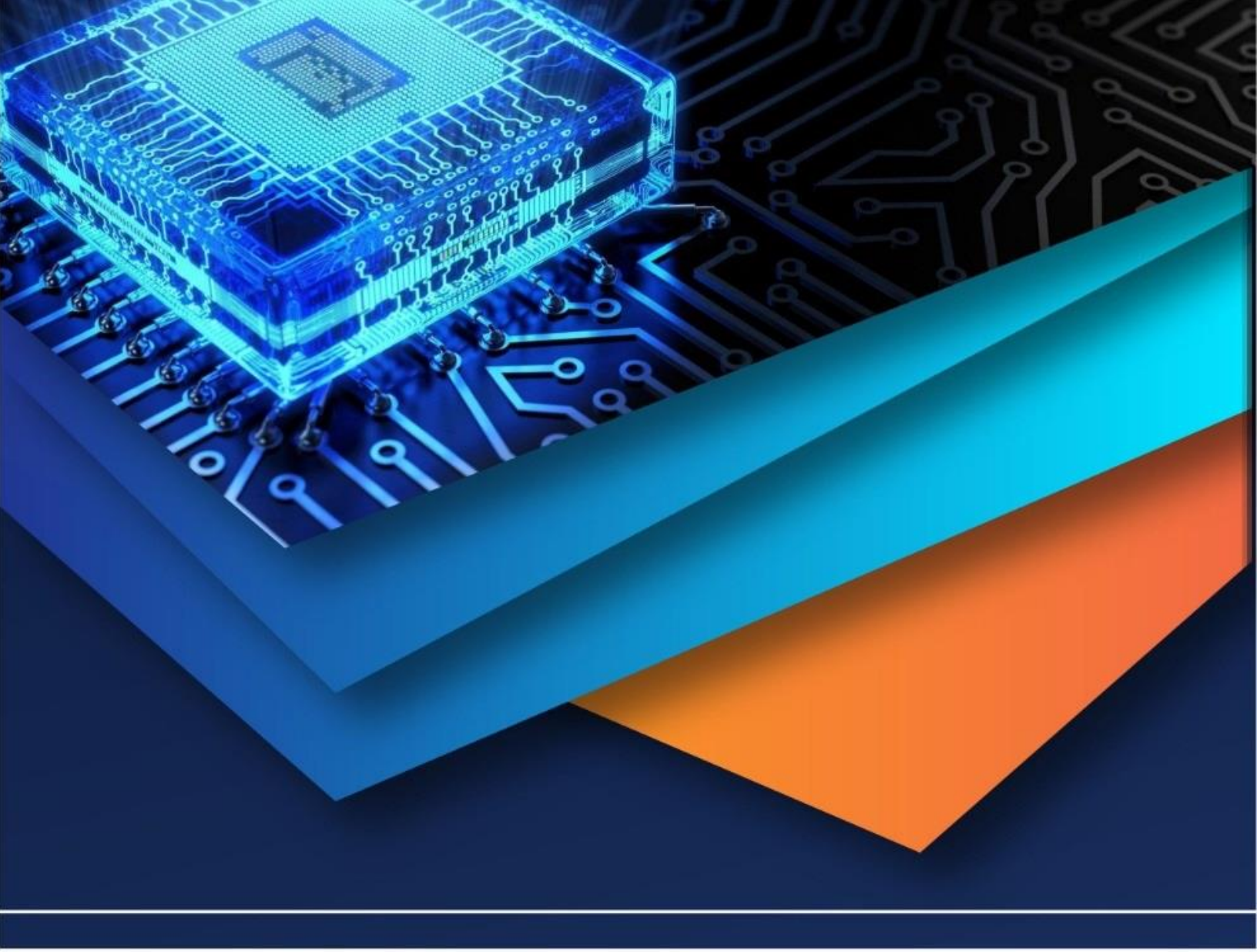
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