

# THE ASSISTED HEALTHCARE SYSTEM (AHS)

Under the supervision of DR. Islam Elgedawy

## Project description:

Our system is about health care and medical care using virtual reality (VR), Artificial intelligence (AI), databases, and Big data analysis.

## List of names:

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## CUSTOMER REQUIREMENTS:

1. Smart device anyone can buy connected to the system that can send the location to the hospital to send an ambulance if there is any accident happens.
2. Rabid and easy communication with the client.
3. The user should enter his personal data and save it in database.
4. System should analyze data entered and make plans to help the user.
5. Send Alert to his emergency contacts before any problems or complications occur.
6. The device checks the nearest hospital to patient.
7. Periodic follow-up on Vital signs , such as blood pressure or heart rate readings.
8. Create empathetic interaction using voice feedback.
9. Properly document patient note.
10. Giving recommendation about doctors information to the patient.
11. Make an appointment with Virtual doctor
12. Patient needs a medication schedule or planner to remind him to take his medicine on time.
13. The latest news about preventative care.
14. Increase the accuracy by granting an AI that can check if there is interaction that may occur between

the drugs used or if the patient have an allergy to specific medication.

15. Psychological support for the patient and his family
16. To make the patient aware of his state of health to enable him to participate in decisions related to his treatment.
17. Customers expect healthcare services to be personalized to their specific needs.
18. Maintain confidentiality of the patient's condition.
19. System help to implement appropriate measures to prevent the spread of infections and other hazards to patients, staff, and visitors
20. The System manage your daily meals according his health condition.
21. system calculate the perfect weight.
22. system calculate the patient calories consuming during the day
23. the system figures the patient sleeping time and warn him if he get less time than his needs according to data base system
24. the system suggest apps for workout time according to the patient health condition.
25. Minimizing of errors and adverse events.

26. Increased quality of care and enhance healthcare outcomes
27. Improve provider and patient satisfaction through our software and if it necessary can use technical support.
28. The system will generate a diagram monthly to covered distance state.
29. Electronic questionnaire survey will be published monthly on the app for Comments and Complaints.
30. Facilitate payment methods via (Visa, Fawry Pay, Master Card, and Vodafone Cash)

## Subsystems names & functions:

1. Registration which get from the patient all the data about national id, his phone number and also get his emergency contacts and maintaining confidentiality of data.
2. collecting patient data on a data base system and the diseases he suffers from and his health conditions .
3. AI suggest the suitable doctor according to the patient's health condition.
4. Patient that has chronic disease use a smart device to follow-up his health condition and if there any bad record the patient and his emergency contact will receive alert.

5. Medical consultation with bots using artificial intelligence to ask them and take advice from them for treatment, and if the bot cannot understand the situation, then the medical consultation becomes with a real doctor online, or he can book appointment in the hospital.
6. The system checks if the medicines that will be taken in the same time, doesn't have harmful effects on patient, if medicine will have harmful effect, system refuses to dispense medicine .
7. If the patient is allergic to the medicine and the doctor did not pay attention and made a request for the medicine, the system rejects the request.
8. The system reminds you of medication times ,sleeping time and workout time
9. The device checks the amount of the medicine and make alert before the end of medicine.
10. The system will provided with language translation to communicate with patients who speak different languages
11. Bots using AI with the help of doctor and the properly notes suggest the latest news about preventative care.
12. Calculate user weight periodically to detect any change in the weight

- 13. system detect the steps and the distance covered by the patient to calculate his calories consuming during the day
- 14. Survey system which rate the survey and connected with the technical support team
- 15. Payment method which facilitate the way of payment

Subsystem identification:

Subsystem name	Subsystem function	Subsystem interface
• Registration	collecting private information of the patient	Public void GetPatientInfo(String name , String id ,String phone )
• Diseases the patient may suffer from	Collecting data from the patient about if he suffer from a diseases or have an allergy from something , etc	public void YourDisease(String Diseases)
• Recommendation	AI suggest the suitable doctor according to the patient's health condition.	public void suggestion () public void DoctorName()
• Follow-up	using smart device the system follow-up his health condition and if there any bad record the patient and his emergency contact will receive alert	Public void HealthFlowUp() Public void ReceiveAlert()
• Medical Consultation with bots	to ask them and take advice from them for treatment, and if the bot cannot understand the situation, then the medical consultation becomes with a real doctor online, or he can book appointment in the hospital.	public String TakeMessage(String question)  public void ReplyMessage()  public void BookAppointment() public void BookOnlineAppointment() public void SuggestDoctor()

• Drugs interaction detection	The system see if the medicines that the doctor ordered for the patient will have negative effect on the patient if he took them in the same time	public void DoctorEnterMedicine (String Medicine) public boolean CheckDrugsInteraction () public void AcceptOrDeclineRequest ()
• Medication review	Reviewing the correctness of the medicine that the doctor prescribed for the patient and if the patient is allergic to it the system refuses it and alerting the doctor to review his request again	public void EnterMedicine(String Medicine) public Boolean AllgeryCheckMedicine()
• Drug time reminder	remindes the patient to take his own medicine on the specific time	Public void GetMedicationDose() Public void GetDoseTime() Public void ReminderMessage()
• Medication sergeant	check the amount of medicine and it gives you a warning before it ends	Public void CheckAmuont() Public void WarningMessage()
• Translation	The system will provided with language translation to communicate with patients who speak different languages and this will help using of system in different countries	Public void EnterPatientLanguage(String Language) Public void SpeechTranslation()
• care suggestion	system by using AI with the help of doctor and chating with patients (by chat bot) to take the properly notes to suggest the latest news about the preventative care.	public void EnterTheSpecializationYouWant (String Specialization ) public void TellBot(String tell) public void ShowNews()
• perfect weight	taking from user his weight and height every week to detect any change in the weight to get the ideal weight that the user wants .	Public void EnterYourWeight(double weight) Public void calculateTheCalories() Public void ShowYourImprovement() Public String resultCaloriesDaily(String result)
• daily calories	The system detects the steps and distance traveled by the patient (if he is walking or running) to calculate the calories consumed during the day and compares if this is commensurate with his health condition and the results are shown daily	public void EnterYourWeight(double weight) public void calculateTheCalories() public void ShowYourImprovement() public String resultCaloriesDaily(String result)

<ul style="list-style-type: none"><li>• technical support</li></ul>	Survey system which rate the survey .  If the user have a technical problem,system will try to solve it and connected with the technical support team.	Public void Rating (int rate)  Public void UserProblem(String problem)  Public void SolvingProblem()
<ul style="list-style-type: none"><li>• payment</li></ul>	Facilitate payment methods by adding popular payment methods like(fawry pay, vodaphone cash, visa,mastercard)	public void NotificationOfMoneytopay()  public void MoneyToBePaid(String MethodOfPay)



Traceability Matrix:

CUSTOMER REQUIREMENTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
2	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0
3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
5	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
6	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
10	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
12	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
14	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
15	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	1	1	1	0	1	0	1	0	0	0	0
17	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
21	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0
22	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0
23	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
25	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0
26	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0
27	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
28	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

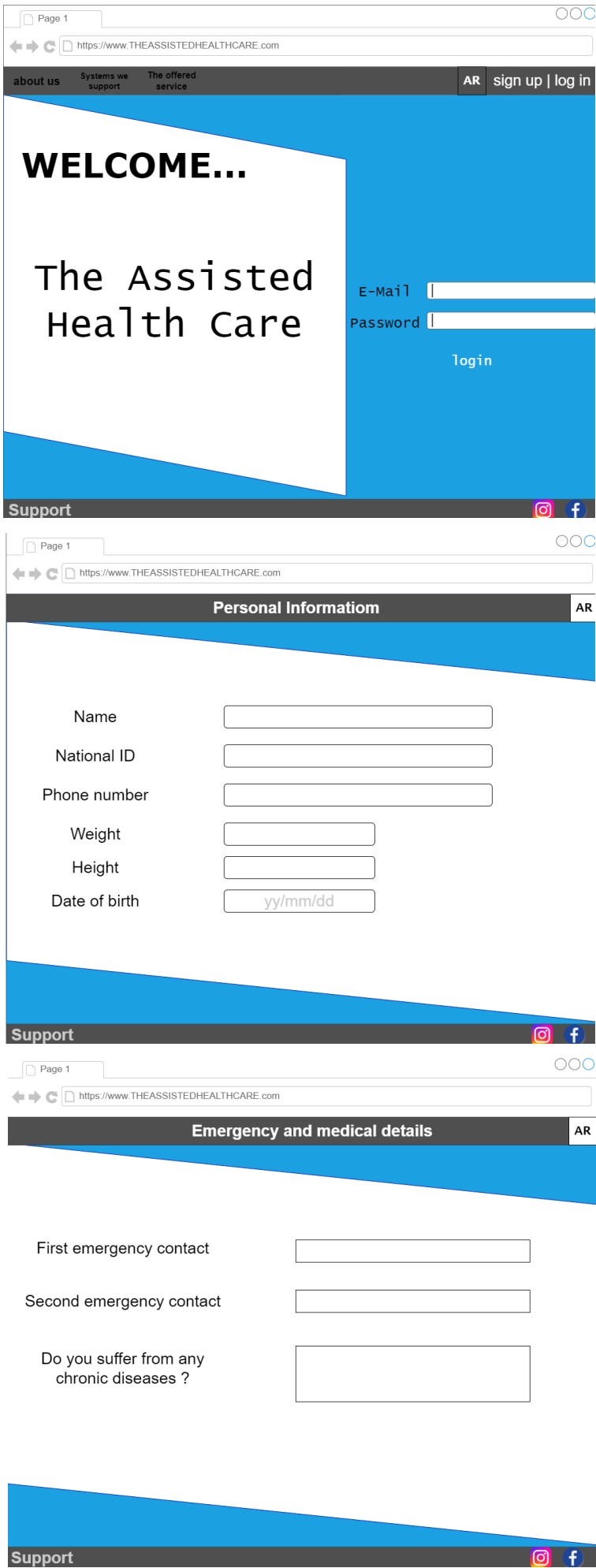
GUI interface and user manual:

When you open the website you will see login screen.

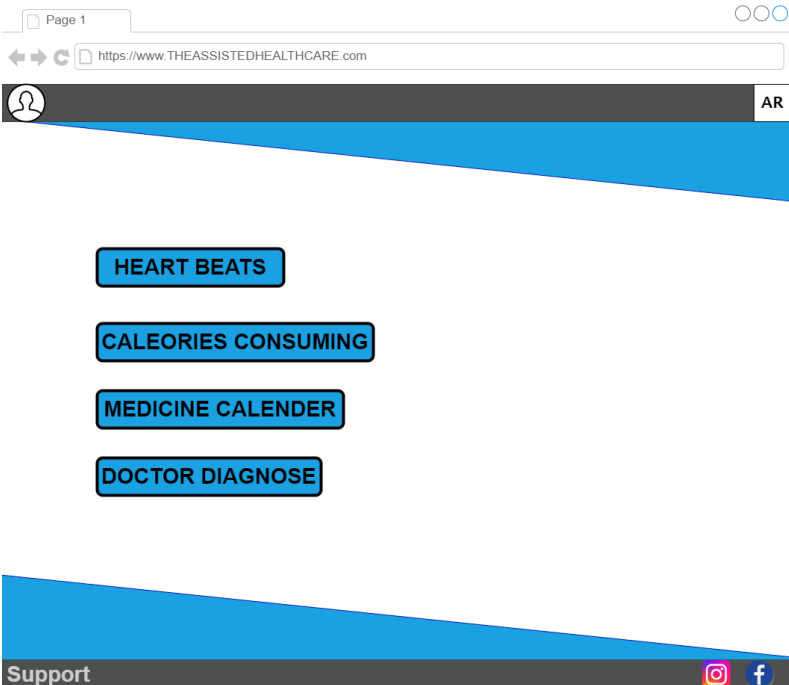
If you have no account press on sign up at the top of the page

When you press on sign up the personal information page open where you will fill your personal details to create an account

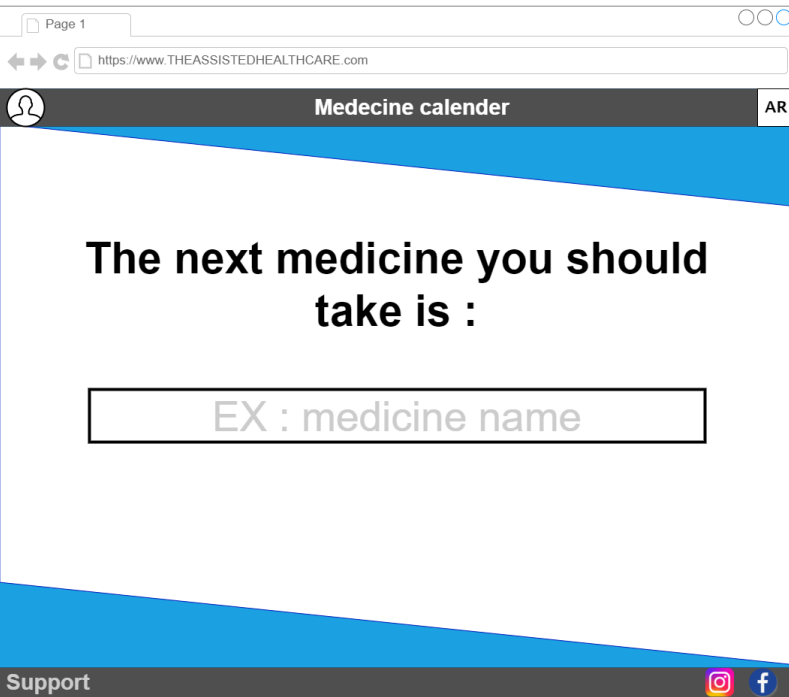
When you fill the personal information page you go to emergency and medical details page where you will fill your emergency



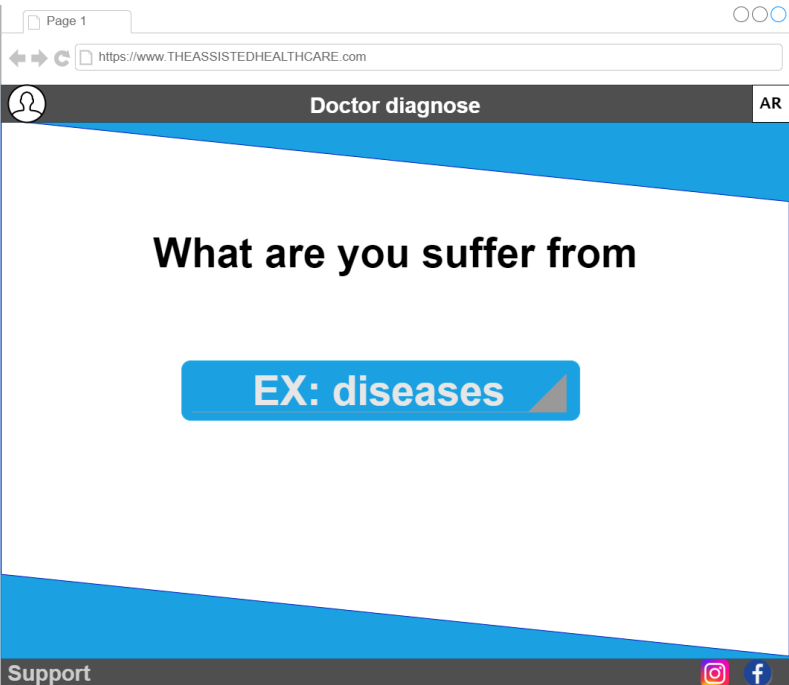
You open your account  
or create it the main  
page will appear



If you choose medicine  
calendar the medicine  
calendar page will open  
which you will know the  
next medicine name



If you press on doctor  
diagnose it's page will  
open where you will  
choose diseases you suffer  
from where the system  
will suggest for you the  
best doctor for your case



This page will open when you complete the previous page

If you choose from the main page heart beats you will see your heart beats and see a diagnose for it

If you choose calories consuming you will your daily consuming of calories and steps and distance covered

