Electronic training platform

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1. General specification

1.1. Introduction

The term training platform means providing training courses for specific groups that are sponsored by an institution.

In the Kingdom's endeavor to provide the best services to the guests of the PoTHMs to perform the rituals with ease, Here comes the turn to POTHMs in helping Two Holy Mosques to contribute to achieving the goal of the Kingdom.

The General Statistics Authority indicates that the number of workers in THMs are more than 10,000 from different parts of the world, some of whom did not have how to guide people to their correct destination, so this platform came to train the trainers through remote training courses that teach them the most accurate details.

Through this pandemic, a lot of people who need to train they stop their training because of the distancing, this platform will help them to have a full knowledge in distance.

Therefore, we decided to build an ETP system to help PoTHMs workers to do their work in ease and a professional way at the same time.

1.2.   General Description

A Web-Based System, An electronic platform and a mobile phone application that aims to provide services and training activities at the PoTHMs to everyone concerned with the two holy mosques.

ETP to help our target users to know more about their work, the system offers different courses in various language under different categories, in addition the system allow trainers to participate and post new courses, moreover the system recommend courses to users based on their job to help them find their course easier and in an efficient manner.

The window for PoTHMs Trainee, should guide theme to courses that can be divided into (beginner, versed and professional).

The courses will be determined by PoTHMs for any field will help THMs.

Admin of the system has access to every page, adding, removing course, adding, removing Administrator and waiting for system outputs from IT team.

Trainer who will be teaching in specific course, shall send his request with his cv and waiting for response from the Administrator of his/her section.

Administrator who will accept the trainers, gives a certificate for each course, watching the progress of his section and provide the Admin by a Monthly Statistics.

1.2.1. Product Vision

PoTHMs workers shall have a full knowledge to what they work for without needing to be nearly to PoTHMs.

1.2.2 References

- Presidency of the Two Holy Mosques
https://gph.gov.sa/index.php/ar/

- A training platform for workers in the service of God's guests (Wafadah)
https://wifadah.uqu.edu.sa/landing/

- General Authority for Statistics in the Kingdom
https://www.stats.gov.sa/ar/news/280

- Lucidchart: Online Diagram Software & Visual Solution
https://lucid.co/

- software Engineering (9th Edition) by: Lan Sommerviale

http://index-of.co.uk/Engineering/Software%20Engineering%20(9th%20Edition).pdf

1.3 Main Functionality

- The platform and the application should be in Arabic, which is the basic one, and it can be changed to English so that the system changes all display screens and pages, for everyone the control panel with the content entered in each screen, and that there is room for adding other languages in the future.

- Considering the ease of use in displaying the contents of the system.
  The use of colors in an attractive and innovative way to attract the user, while observing international standards in visual vision(UI).

- Integration and linkage with the different systems in the PoTHMs, and the related systems outside the presidency.

- Building and designing interfaces on which the different sections of the platform are distributed in detail.

- Platform details can be viewed and browsed through the default home page without logging in as a visitor.

- Stages of order on the site: (New - under process – completed) in addition to sending Email alerts at each request stage.

1.3.1. Product Usability

- Ease of access for the user to the most important thing in the platform (Course) once he/she logs in only

- The platform icons are shortened with clear expressions and illustrations.

- Easy access to everything that the trainee is concerned with, including a trainer, a Administrator, and a Admin.

1.3.2. User Characteristics

- Intended users are all PoTHMs, they maybe workers, student, administrative or anyone who related to the presidency.

- The PoTHMs may open the door to anyone interested to the presidency for the platform.

1.3.3. Intended Technology

The platform compatible with tablets and mobile devices, and the application is compatible with Android system devices and Apple system devices.

1.4   Challenges

- Lack of availability of information.
- The team does not know each other, and thus causes slow workflow.
  Solution:
- Every member chooses a specific task that she has a good background of it.
- Daily meetings help us to understood each other clearly.

1.5   Product LC &Timeline

When we were choosing the model, two points were taken into consideration, which were mentioned in the RFP (Seventh part), and they are:
- The possibility of change and development in the next versions(It can be another language in the future).
- The importance of the developer's presence at every step with the presentation of developments.
Also, some requirements were clearly not sufficient, so there was a team member who played the role of the client urging that he would be a key member in the meetings to delete / add and amend something from the requirements.
Therefore, the choice was made to be Agile, not a plan driven model, but XP or Scrum? Both models work on increasing and iterative work, but a member of the team had a specific responsibilities in the work of a certain part without the need for the work to become presented to everyone and everyone is responsible for all tasks.

The working group meetings were almost daily, with an estimated 10 meetings. The meeting is held to ask about three main points: the outputs of the previous meeting, the planning, and the outcomes of the next meeting.
there are questions we were asked in the first 3 meeting:
who? what? why? for example:
"As an admin, I want to access all the platform, so I can check the outcomes of the program".

The Iterative work were expressed in our work as one lightly task repeated in many times, for example: Description were progressed many times in the begging, BRS and SRS and so on.

Also, in Effort Estimation, the team sought to fully take advantage of the number of main functionalities, number of group members and the remaining amount of effort. (Planning Poker)

The diagram below shows the progress of work from receiving the product until submitting our work.(Outcomes for each meeting)
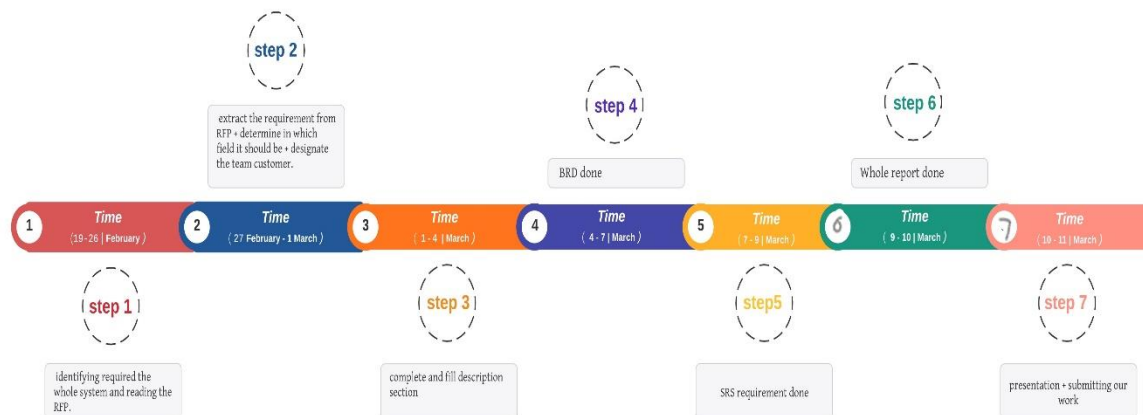

Figure 1: Timeline

ToDo List		
Story	Estimation (per day)	Priority
As an Admin, I want to have the access to all aspect system, so I can rate my product.	5	1
As an Administrator, I want to have the access to my section, and providing statistic, so I can provide Suggest for improvement.	4	2
As an Administrator, I want to approve/disapprove trainers, so I can determine the workers of my section.	3	1
As an Admin, I want to communicate with training bodies to provide courses.	2	3
As an Admin, I want to have a unique ID to all my staff, so we can join to the system easily.	3	5
As a trainer, I want to communicate with my trainee, so they can ask me, contact with me.	1	3
As a trainee, I want to see all aspect courses, so I can choose any course.	2	4
Total	20	

Figure 2: product backlog

	Task description	Duration	People (#workers)
Task 1	Identifying the system	5 days	5
Task 2	Reading RFP and extract its requirement	3 days	5
Task 3	Customer member Identify new requirement +preparing the template	2 days	2
Task 4	Start filling the template + Customer member Identify new requirement + the rest record the requirement and analyze it	2 days	5
Task 5	Determine BRS system	3 days	5
Task 6	Determine SRS system + preparing the whole report	5 days	5

Figure 3: sprint backlog

1.6   Team Contributions

Table 1: Team Contribution

Student Name	Role and Responsibilities
Areej Turky Alotaibi	Leader, Fill the Template and Use case#6
Raghad Adel Alshabana	Member, Non-Functional Requirement and Use case#1,2,3
Slima Mohammed bnous	Customer of the team, Use case diagram and presentation
Shoroog Saad Alarifi	Member, Functional Requirement and Use case#4
HAJAR abdullaziz Aljassar	Member, Functional Requirement and Use case#5

2 Software Requirement Specification

In this chapter we assume the previous chapter was approved, we will discuss in detail how shall/should our system will be in technical language.

2.1 Specific Requirements

2.1.1 Functional Requirements

2.1.1.1. System-related functionalities:

1. The system shall provide different sign in interface for both staff /trainees.
2. The system shall be able to allow any user to view the ETP.

3. The system shall be able to forbid the user to access course content and shall transfer him/her to the sign-up page immediately.

4. The System shall be able to allow the user to search for (course-trainer-any tool).

5. System shall be able to allow users to filter the search for specific result.

6. The system shall be able to assign a unique 8-digit ID number for a fresh staff added to the system as an identification reference.

7. The system shall be uniquely identified each staff member by his/her 8-digi ID number.

8. The system shall be able to reject registration when robot's verification failed.

9. The system shall be able to suggest saving ID/ email and password of the users in the system.

10. The system shall be able to auto sign-in users if they allow system to save their information.

11. The system shall be able to provide a "forget password" button in the sign in interface.

12. The system shall be able to generate a trainer's report with the specified criteria.

13. The system shall be able to display a list of available courses.

14. The system shall be able to display recently common courses.

15. The system should be able to recommend courses to trainees based on his/her interest according to his/her registered course' types.

16. The system shall be able to display the course information according to course' title, description, duration, target trainees, trainer's name and category.

17. The system shall be able to display the trainer information according to his name, gender, major, qualification, language he speaks and his email.

18. The system shall be able to display ETP contact information according to phone number, social network accounts and ETP's email.

19. The system should be able to display "about us" video for a new visitor.

20. The system shall be able to display announcements.

21. The system shall be able to display trainer's / trainee's courses.
22. The system shall be able to notify the trainer / trainee before his/her course.
23. The system shall let the administrator have the right to delete any course in the system.
24. The system shall be able to notify the admin for Suggestions and complaints.
25. The system shall be able to notify the admin for Statistic reports.
26. The system shall be able to notify the administrator for trainers' reports.
27. The system shall be able to use colors in an attractive and innovation way to attract the user, while observing the international standers in visual vision.
28. The system shall be able to integration and linkage with different systems in the PoTHM , and the related systems outside PoTHM.

2.1.1.2. Visitor-related functionalities:

1. The visitor should not have to sign up or sign in to view the ETP.
2. The visitor shall be able to sign up as a trainer / trainee.
3. The visitor shall be able to search for (course-trainer-any tool).
4. The visitor shall be able to view available courses.
5. The visitor shall be able to view details about any course including the course' title, description, duration, target trainees, trainer's name and category.
6. The visitor shall be able to view trainer's information according to his name, gender, major, qualification, language he speaks and his email.
7. The visitor shall be able to contact with ETP via ETP's email.

2.1.1.3. Trainee-related functionalities:

1. The trainee shall be able to sign-in using his/ her email/phone number and password.
2. The trainee shall be able to sign up according to his first name, last name, age, gender, phone number, email and password.
3. The trainee shall be able to agree the privacy policy regulation.
4. The trainee shall be able to receive confirmation of registration by his/her email/ text message.
5. The trainee shall be able to confirm the system if registering issues occur by Contact information.
6. The trainee shall be able manage his/her profile.
   - The trainee shall be able to view his/her profile.
   - The trainee shall be able to edit his/her profile.
   - The trainee shall be able to delete his/her profile.
7. The trainee shall be able to view his/her registered course by "my course" icon.
8. the trainee shall be able to view details about any course including the course' title, description, duration, target trainees, trainer's name and category.
9. The trainee shall be able to add/delete course in his/her preferences Cart.
10. The trainee shall be able to enroll to any course.
11. The trainee shall be able to enroll to more than one course in the same period of time.
12. The trainee shall be able to delete his/her registered course from "my course" icon.
13. The trainee shall be able to receive a notification before his course.
14. The trainee shall be able to communicate with his/her trainer through course by chatting.
15. The trainee shall be able to contact with any trainer on the ETP through trainer's contact information.

16. The trainee shall be able to search course according to course' title and trainer's name.
17. The trainee shall be able to stop/resume the course in any time (only if the course were recorded, online courses do not support this feature).
18. The trainee shall be able rate the course and the trainer performance after the course is done.
19. The trainee shall be able to get a certification after completing his/her course.
20. The trainee shall be able to download/print his/her certification.
20. The trainees shall be able to sign out from the system.

2.1.1.4. Trainer related functionalities:

1. The trainer shall be able to sign up into ETP via "train on ETP" icon by sending a training request with his/her CV.
2. The trainer shall be able to sign in using his/ her ETP's ID .
3. The trainer shall be able to cancel the training request only in the initial stages (if the request pass the under process stage the trainer shall send request for his/her administrator for cancelation).
4. The trainer shall be able to manage his/her profile.
   - The trainer shall be able to view his/her profile.
   - The trainer shall be able to edit his/her profile.
   - The trainer shall be able to delete his/her profile.
5. The trainer shall be able to view his/her courses.
6. The trainer shall be able to receive a notification before his course.
7. The trainer should announce to trainee about the course's content (quick quizzes, assignments, references to see)
8. The trainer shall be able to communicate with his/her course trainees through course by chatting.

9.	The trainer shall be able to communicate with his/her administrator through email.

10. The trainer shall be able to search a course according to course' title.

11. The trainer shall be able to choose his/her course if it is online/recorded course.

12. The trainer shall be able to receive feedbacks from trainees right after the course is done.

13. The trainer shall be able to receive his/her course trainees' performance.

14. The trainer shall be able to sign out from the system.

2.1.1.5. Administrator related functionalities:

1. The administrator shall be able to sign in into the system using his/her ETP's ID.

2. The administrator shall be able to view trainer's/ trainee's information.

3. The administrator shall be able to view his/her tasks that assigned by the admin.

4. The administrator shall be able to approve/ disapprove trainer's account via Emails.

5. The administrator shall be able to view today's courses with corresponding trainers.

6. The administrator shall be able to manage accounts:
    - The administrator shall be able to add a new trainer account.
    - The administrator shall be able to block trainee's/trainer's account.
    - The administrator shall be able to delete trainee /trainer's account.

7. The administrator shall be able mange courses categories:
    - The administrator shall be able add new courses categories.
    - The administrator shall be able edit courses categories.
    - The administrator shall be able delete courses categories.

8. The administrator shall be able to manage courses:
   - The administrator shall be able to add a new course according to course' title, description, duration, target trainees, trainer name and category.
   - The administrator shall be able to edit a course according to course' title, description, duration, target trainees, trainer name and category.
   - The administrator shall be able to delete a course.

9. The administrator shall be able to generate trainee's certification after he/she completes his/her course.

10. The administrator shall be able to announce about a course (course's time rescheduling, emergency conditions, new courses).

11. The administrator shall be able to communicate with admin/ trainers / trainee via email:
   - The administrator shall be able to send an email to admin/ trainer / trainee.
   - The administrator shall be able to receive an email from the admin/ trainers / trainee.

12. The administrator shall be able to receive users'/trainee's requests.

13. The administrator shall be able to receive reports about the trainer's performance right.

14. The administrator shall be able to collect a (monthly- annual) statistic.

15. The administrator shall be able to sign out from the system.

2.1.1.6. Admin related functionalities:

1. The admin shall be able to sign in into the system using his/her ETP's ID.
2. The admin shall be able to view administrators' information.
3. The admin shall be able to assign task to the administrators.
4. The admin shall be able to receive trainer's performance reports.

5. The admin shall be able to receive statistic reports.

6. The admin shall be able to supervise the administrator's work.
7. The admin shall accept/reject courses depends on the courses' subject.
8. The admin shall be able to communicate with training bodies for providing courses.
9. The admin should be able to communicate with any bodies related to the system.
10. the admin shall be able to receive complaints and suggestions.
11. The admin shall be able to view system's site statistics.
12. The admin shall have communication way with the stakeholders of the ETP to discuss finance / statistic/and the overall performance of the ETP.
13. The admin shall be able to manage the system overall.
14. The admin shall be able to sign out from the system.

2.1.2 Non-Functional Requirements

A. Security
- Only authorized users can access user data.
- Users cannot access admin and administrator permissions.
- The data must be encrypted for login connections so that others cannot get access.
- At least 99% of breakthroughs must be detected within 10 seconds.

B. Performance
- The average system response should be less than two seconds.
- The registration for a new user should not exceed one minute.
- The login should not exceed 30 seconds.
- The average time to register for the course should not exceed one minute.
- The system should accommodate 1000 course records per minute.
- The system should be loaded in 3 seconds when the number of concurrent users

is > 1000 .

- In case of failure recovery, the average repair time should be less than an hour
- System should get ready after update within 2 second.
- The system shall not use more than 15% of battery power in one hour.

C. Maintainability

- A course can be added, modified or deleted with the minimum amount of interrupting the system, and reports can be created or reformatted if necessary.
- The system should be easy to update, customize, and expand by using different sub-units instead of a single unit.

D. Usability

- The system should not require technical skills to use it.
- The system display should be easy to use and easy to understand by the simple graphical user interface.
- The system must support both languages (Arabic and English).

E. Reliability

- The system should be available 99.93% of the time.
- For every invalid user input, the system must display an error message.
- The system defect rate should be less than one failure per 1000 operating hours.
- The content of the courses should always be available even after their time ends.
- The system maintains backup copies of recorded events and stores them for a period of three years.

Organizational requirements:
- Users shall authenticate themselves using their authority id for(admin/administrators/trainer) or username and password for(trainee).

External requirements:
- The system must implement the provisions of confidentiality and user privacy.
- Adherence to the precautions contained in the anti-cybercrime law.

• Commitment to the provisions of the electronic transactions system.

2.2 Use Case Specification

Use Case#1

Use case:	Sign-up
Goal:	To sign up to the website
Actor:	Trainee/trainer
Trigger:	Trainee/trainer select the sign-up button from the home page
Scenario:	1. The use case starts when the Trainee/trainer select the sign-up button from the home page 2. Trainee/trainer writes their first name and last name in names area 3. Trainee/trainer writes their username in the username area 4. Trainee/trainer writes their phone number or e-mail in contact area 5. Trainee/trainer writes a specifies the correct choices to ensure that the user is not robot. 6. Trainee/trainer writes their password that should contain 8 characters in form of letters, numbers, and symbol. 7. Trainee/trainer select sign up button.

Extensions:	3.A. The username is unavailable (used before).
	    2.A.1 Trainee/trainer tries with another username.
	4.A. phone number or E-mail may be invalid
	    4.A.1. Trainee/trainer writes correct phone number or e-mail
	    4.A.2. Trainee/trainer tries with another phone number or e-mail
	5.A The choices of user are incorrect.
	    5.A.1 . Trainee/trainer tries again.

6.A. The Trainee/trainer may not write 8 characters.

  6.A.1. Trainee/trainer writes their password again

Use Case#2

Use case:	Sign-in as an admin/ administrators/trainer
Goal:	To Sign-in to the website
Actor:	Admin/administrators/trainer
Trigger:	Admin/administrators/trainer select the sign-in button from the home page

Scenario:	1. The use case starts when the admin/administrators/trainer select the sign in button from the home page
	  1. Admin/administrators write the ID in ID area.
	  2. Admin/administrators select sign in button.

Extensions:	2.A. The ID is (incorrect).
	  2.A.1 admin/administrators/trainer tries again.
	  2.A.2 admin/administrators/trainer click on (forget ID).
	
	  3.A.2.1 admin/administrators/trainer write
	  her/his e-mail
	  3.A.2.2 admin/administrators/trainer will receive new ID
	  on the e-mail

Use case:	Sign-in as a trainee
Goal:	To sign-in to the website
Actor:	Trainee
Trigger:	trainee selects the sign in button from the home page
Scenario:	1. The use case starts when the trainee selects the sign in button from the home page 1. trainee writes the username in the username area . 2. trainee writes the password . 3. trainee selects sign in button.

Extensions:	2.A. The username is (incorrect).
	         2.A.1 trainee tries again.
	3.A. The password is (incorrect).
	     3.A.1. trainee writes password again.
	     3.A.2 trainee click on (forget password) :
	
	     3.A.2.1 trainee write her/his e-mail.
	        3.A.2.2 trainee will receive on the e-mail new password suggested randomly by the system.
	     3.A.2.3 trainee should enter the new password for the first time.
	   3.A.2.4 trainee can change the password .

Use Case#4

Use case:	Add a new course.
Goal:	To add a new course to the system
Actor:	administrator
Trigger:	The administrator selects add course from course setting in his/her home page.
Scenario:	1. The use case starts when the administrator receives the course content from the admin. 2. Administrator goes to the course setting icon. 3. administrator selects add course option. 4. Administrator selects the proper category to add this course to 5. system displays add course form. 6. Administrator fills the form about the course's content according to course' title, description, duration, target trainees, trainer name. 7. Administrator links the corresponding trainer with the new course. 8. administrator selects submit button.

	1.A reception process failed.
	
	       1.A.1 Administrator try to refresh the page.
	
	       1.A.2 Administrator informs the admin about the malfunctioning.
	
	          1.A.2.1 admin try to send it again.
	
	          1.A.2.1 admin contact with technical support
	
	4.A Administrator does not select the category to add the course to
	
	   4.A.1The system keep asking until the Administrator selects one of the categories.
	
	6.A Administrator made gaps to some of the required information about the new course.
	
	   6.A.1 The system keep notify the administrator and cannot submit until the Administrator fill them
	
	6.A The course' title is unavailable (used before).
	
	   6.A.1 Administrator tries with another available course' title.
	
	7.A Administrator link the course with wrong trainer.
	
	   7.A.1 Administrator delete the course from the wrong trainer and relink the course with the right trainer.

Use Case#5

Use case:	Submit a training request
Goal:	To Submit a training request for the opportunity to train trainees on the website
Actor:	user
Trigger:	user selects the training on ETP button from home page
Scenario:	1. The use case starts when the user selects the training on ETP button from the home page 2. user uploads his/her CV in upload CV area. user selects submit button.

Extensions:	2.A. The upload is failed.
	    2.A.1 user tries upload again.
	    2.A.2 user click on (Help icon).
	
	        2.A.2.1 user searches for the question related to his/her problem.
	      2.A.2.2 user will take the same steps as the mentioned solution.
	    2.A.3 user click on (contact icon).
	      2.A.3.1 user will contacts with administrator by phone number or by an e-mail.

Use Case#6

Use case:	Enroll to courses
Goal:	Enroll to any courses in any time to achieve knowledge
Actor:	Trainee
Trigger:	trainee selects the "Enroll now" button in the course overview.
Scenario:	1. The system shows categories courses. 2. Trainee select specific category. 3. System show the trainee courses in this category. 4. Trainee has to choose between courses 5. trainee enter the button of "Enroll now" button in the course overview. 6. System put the course in the my course section Trainee finds his/her course in my courses.

Extensions:	2.A. The course is no longer available.
	    2.A.1. Trainee tries with another course
	3.A. No courses in this category.
	    2.A.1. Trainee tries upload the page/close and open if it's in the application.
	    2.A.2 Trainee tries with another category.
	4.A Trainee doesn't find his/her course in my courses.
	    4.A.1 Trainee shall contact to Complaints and suggestions then it will send to the IT team.

2.2.1 Use Case Diagram