Diabetic Retinopathy Consultation System (DRCS) Pre-Testing Questionnaire

The objective of this survey is to gather information requirements for developing a medical web-based system for Diabetic Retinopathy (DR) screening, Diabetic Retinopathy Consultation System (DRCS).

DRCS is a collaboration research project between Universiti Teknikal Malaysia Melaka (UTeM) and Department of Ophthalmology, Hospital Melaka. The project is funded by UTeM Short Term High Impact 2020 Research Grant (Project No: PJP/2020/FTMK/HI17/SO1715). The objective of this research is to develop a web-based decision support system for diabetic retinopathy screening and classification in eye fundus images. In addition, the research will convey the diabetic retinopathy information content based on the users' needs with a web-based environment. Besides, the objective of the proposed research is to evaluate the effectiveness and usability of the developed system to the target users. This system would provide a better way for the communication between the medical officers in health clinics and the ophthalmologists in hospital in the diabetic retinopathy screening process. The system also will be a medium for all the medical officers in health clinics in learning diabetic retinopathy screening process in more effective from the experienced ophthalmologist and communicate among them. It is envisaged that the proposed decision support system for clinical screening would greatly contribute to and assist the management and the detection of diabetic retinopathy.

We are grateful for your participation and assistance in answering this questionnaire.
*Required

Part A : Demographic

1. Gender *

   Mark only one oval.

   ◯ Male

   ◯ Female

2. Age *

Mark only one oval.

○ Less than 20 years old

○ 20-30 years old

○ 30-40 years old

○ 40-50 years old

○ More than 50 years old

3. Doctors Level *

Mark only one oval.

○ Consultant

○ Specialist

○ Medical Officer

○ House Officer

○ Other: _____

4. Current workplace *

Mark only one oval.

○ Hospital

○ Health Clinic (Klinik Kesihatan)

○ Other: _____

5. Working years in medical sector *

Mark only one oval.

- ○ Less than 3 year
- ○ 3 - 5 years
- ○ 6 - 8 years
- ○ 8- 10 years
- ○ More than 10 years

Part B : Computer Literacy / Skills

6. How long have you been using computers? *

Mark only one oval.

- ○ Less than 1 year
- ○ 1-5 years
- ○ 5-10 years
- ○ More than 10 years

7. Do you have a computer at your work place or at home? *

Mark only one oval.

- ○ Yes
- ○ No

8. Do you currently have regular access to a computer? *

Mark only one oval.

- ○ Yes
- ○ No

9.   Does the computer have an Internet connection? *

Mark only one oval.

◯ Yes

◯ No

10.   How would you rate your own computer literacy? *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

11.   How would you rate your own Internet literacy? *

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

12.   Have you ever used any web applications (e.g., online forms, shopping carts, email programs, etc)? *

Mark only one oval.

◯ Yes

◯ No

Part C : Current DR Screening Practice

13. What are the current problems or challenges in DR screening? *

- [ ] Limited fundus camera
- [ ] Limited trained screeners
- [ ] Manual DR screening and detection
- [ ] Complicated process of DR screening
- [ ] Various signs need to be identified and detected
- [ ] Difficult in interpretation and grading
- [ ] Difficult to communicate and consult with others medical practitioner
- [ ] Require consultation from the expert/ophthalmologist for more confidence of DR classification
- [ ] Require image manipulation and image processing capabilities to work with fundus image
- [ ] Image suffering from noise and latency
- [ ] Necessitating calibration and filtering before the images can be used reliably
- [ ] Low quality of the image

Other: [ ] _____

14. How do you communicate with the ophthalmologists on discussing DR cases? *

- [ ] Outpatient referral
- [ ] Email
- [ ] Messaging
- [ ] Whatsapp
- [ ] Telegram
- [ ] Phone call

Other: [ ] _____

15. What are the limitation in current communication methods? *

    Tick all that apply.

    ☐ Difficult to assist

    ☐ Difficult to communicate and consult

    ☐ One to one communication

    ☐ Not able to see clear view of the image

    ☐ Not able to manipulate image

    ☐ Not able to annotate the image

    ☐ Not able to share information with others

    ☐ Not able to perform image editing (e.g., applying filter, adding text, crop, rotate, adjusting color, brightness, contrast, hue, saturation,etc)

    Other: ☐ _____

Part D : Expected Outcome

16. Do you think an online system for DR consultation should be developed? *

    Mark only one oval.

    ◯ Yes

    ◯ No

    ◯ Not sure

17. Do you prefer web-based as a medium for communication or consultation platform? *

    Mark only one oval.

    ◯ Yes

    ◯ No

    ◯ Not sure

18. Do you prefer the discussion performed in many to many way of communication? *

Mark only one oval.

○ Yes

○ No

○ Not sure

19. Do you agree that fundus image from both sides of the eyes (right and left) should be included in the proposed system? *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

20. Do you agree that the proposed system should provide image manipulation and image editing features for fundus image enhancement (e.g., zoom, annotate, color conversion, etc) *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

21. What are the features or functions should be included in the consultation system? *

Tick all that apply.

- [ ] Upload images
- [ ] User registration
- [ ] Add new case details
- [ ] Respond case
- [ ] Add/edit health clinic/hospital list
- [ ] Add user comment or consultation notes
- [ ] Basic editing (e.g., applying filter, adding text, crop, rotate, etc)
- [ ] Advanced editing (e.g., adjusting color, brightness, contrast, hue, saturation and others)
- [ ] Security (e.g., user log in, change password)
- [ ] Imaging tool and annotation
- [ ] Interactivity

Other: [ ] _____

Part E : Suggestion / Others

22. Please provide any suggestions for the system development and your expectation from the proposed system.

_____

_____

_____

_____

Thank you for completing this questionnaire.