



اَوْنِيُوْا سِيْمِيْوْا تِيْجُوْا لَوِيْجُوْا مَارَا  
UNIVERSITI  
TEKNOLOGI  
MARA

NEW PROJECT DEVELOPMENT (REPORT)

POCKETGUIDE CT PROTOCOLS

TECHNOLOGY ENTREPRENEURSHIP (ENT600): NPD

FACULTY & PROGRAMME: Faculty of Health Science (Ba. Hons Medical Imaging)

GROUP : HS 242 / NHSIF10Y

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## 1.0 EXECUTIVE SUMMARY

Pocket guide CT protocol is an application that is build for the phones that can grant access on insights and new knowledge on how to perform CT scan procedures. So what is a CT scan? What does it have to do with protocol? To make it easier to understand, imagine a junior chef during a busy dinner service, he is slammed with many orders, would not it be nice if there is an app that can help the chef through the recipes. So that is what pocketguide CT protocol application is all about. It aids the CT technologist or operator to execute CT procedure accordingly. It provides step by step guide on how to get the best result out of a CT examination. This application does not intent to replace the CT workstation but to act as a supplementary instruction and insights for the CT technologist on how to achieve the best result from the CT examination.

The target market for this innovation is mainly for radiographers that is qualified in CT scan service. Students can be benefited through this application by learning and relating the techniques and protocol during their clinical postings. Physician also can be benefited from this application by understanding the idea of what the patient is going through in a CT examination.

To describe on how the idea of this application is basically from a single word, "accessibility". Users will have a guide on the palm of their hand, fast and without ambiguity towards the inputs this application provides.

## 2.0 INTRODUCTION

CT scan requests is increasing and as the time goes it is advancing exponentially, but the skill of CT technologist is not expanding equally. This could be due to several factors such as :

- The lack of accessibility
- Junior radiographer on CT duty.
- Succumb to presets protocol.
- Circumstantial – trauma, special case,

Accessibility to books and journals are time consuming, if it is gathered in one platform it will save time and be readily available.

Another pressing issue is that CT scan uses radiation to image the patient's body, it is crucial to get it right the first time. To adhere with radiation protection policy, image acquisition must be done right at the first time to avoid repetitions. With this application as a guide, we hope that it could aid the technologist through out the procedure.

## 2.1 METHODOLOGY

This is the methodology used to gather information about the proposed innovation.

WHO	CT technologist who runs CT scan service
WHERE	2 district hospital, kajang Selangor and lahad datu Sabah
WHEN	Along the period of Jan to May 2019
HOW	Questionnaire, verbal survey.

The questionnaire consists of question that focus on

## 2.2 LIMITATION

The limitation of this study is that the data we retrieve is from 2 district hospital which are hospital kajang and hospital lahad datu, and the study may not be applicable to large or centered hospital because these type of hospital have focused team on CT scan service that is well trained.

### 3.0 NEW PRODUCT DEVELOPMENT.

#### DEFINITION

Pocket-guide CT protocol application provides dynamic and interactive method of viewing and studying of CT protocol, modalities, anatomical parts and localization specific orientate to CT-imaging. The application programs do not intent to replace the CT workstation but instead should be use as an aid or supplementary inputs on how to initiate CT procedure. It displays true size images with high dynamic range so that every parts of the body can be interpreted accordingly.

#### Classification of NPD

This product is basically and improvement of existing product, whereby there are many instruction/guide type of application. We adapt to this concept and apply it to the radiology field.

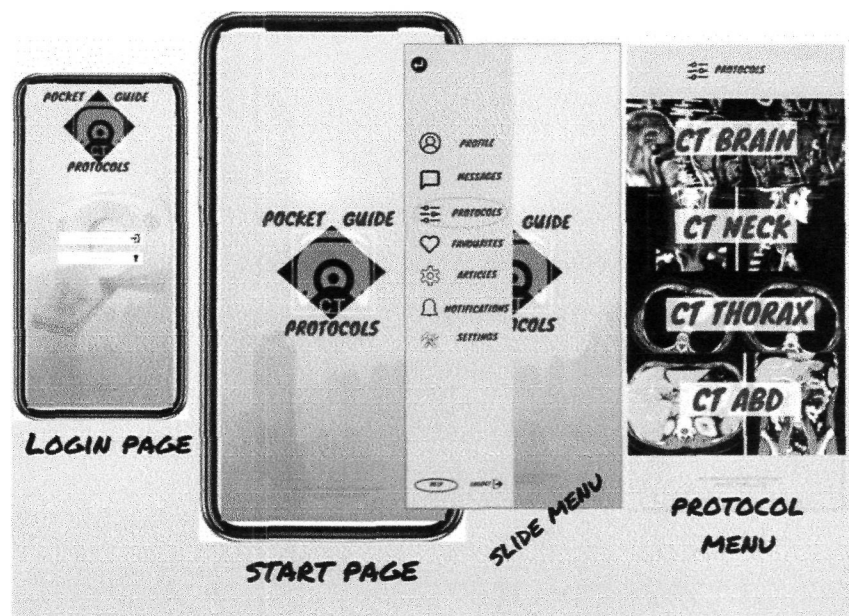
#### New Product Development Process

##### Research & Development

- **Idea generation**  
The idea of this application is generated from observation and personal experience whereby the trends CT radiographer have which is relying/depending on presets protocol and eventually could help extends the knowledge beyond the preset protocol
- **Idea screening**  
The idea is screened through a discussion among the members on how to fix or aid the problem with suboptimal CT examination
- **Market survey**  
A survey was conducted with a focused medical personal group in radiology with a simple questionnaire that consist of yes and no question that may reflect the market demand, potential users and the suitable price.

## Product Design/Features

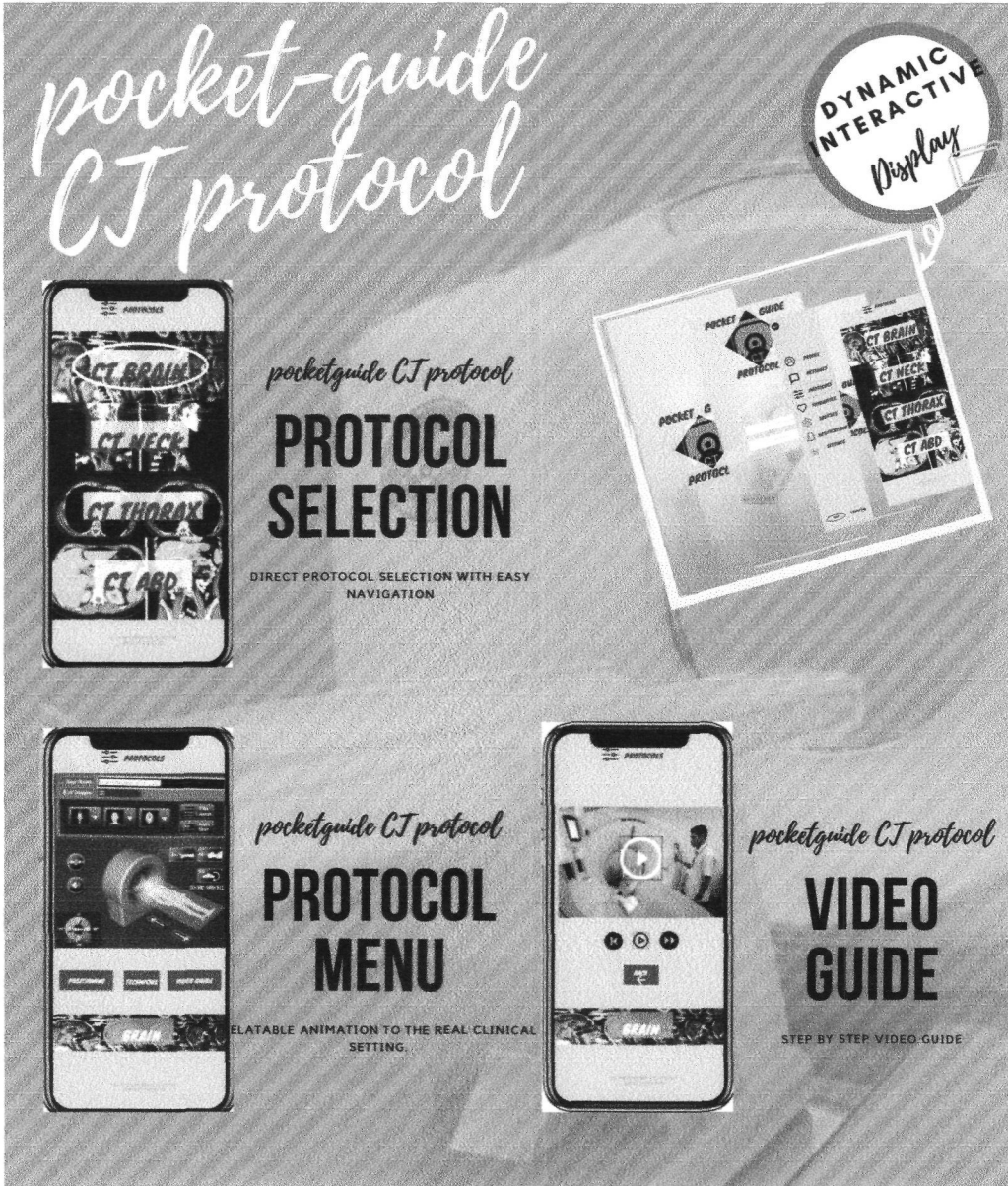
the application is in software form build or installed in the user phones. To promote the user friendly environment, the interface is clean and smooth in transition to its corresponding menus. The dimension of this application is set to fit to the phone screen



## Concept Testing

The concept will be communicating to the target market by a physical appearance but not functional application. The sample will go through the app features (slide menu, interface) videos and the high definition images. The concept will be measure by rating survey. 1 star for very bad and 5 star for very good.

Prototype



## Test Marketing

We are planning test the market by exhibition. We will be joining any radiology related courses, symposium or meetings in Malaysia to be one of the vendors. The group in these type of gathering resembles the target market of this application which are radiographers, radiologist and radiography students. We will approach participants to try out our prototype POCKET-GUIDE CT PROTOCOL application and record their reaction in terms of rating. This application will be available for free (with ads) or RM 50 (without ads) per download.

## CONCLUSION

POCKETGUIDE CT protocols will be beneficial to the Ct technologist in terms of new inputs and knowledge, sharing of information and protocols, efficient work-process, easy accessibility to tecent technologies. Users are more likely to install this application since it is free (without ads) and can be very useful in clinical settings.



## APPENDICES

Sample survey questionnaire.

**Name:**

**Sex:**

**Date:**

**Occupation:**

QUESTIONERE	YES	NO
1. How many years of working?		
2. How many years of CT service?		
3. Do you go to intensive course prior assigned to CT service?		
4. Do you have access to the recent advancement of CT technology?		
5. Do you modify techniques on trauma patients?		
6. Can you relate to the significance of angling the gantry to the base of skull?		
7. Do you refer to presets protocol during your CT service?		
8. In your own words what do you think of an app that provide step by step on "how to" initiate CT scan procedure?		

What is your opinion of using motorcycle as an option of transportation services?

.....

\*\*\* All the answer through this questionnaire are the property of UiTM for the purpose of study only.

FACULTY OF BUSINESS AND MANAGEMENT  
UNIVERSITI TEKNOLOGI MARA, MALAYSIA

**GROUP WORK: NEW PRODUCT DEVELOPMENT RUBRICS**

<b>Course Name: Technology Entrepreneurship</b>	<b>Student's Name:</b> 1. AHMAD SYAKIR B MUHAMAD (2016226338) 2. FAZEMIN B CHAWFA (2016264798) 3. MUHAMMAD ASYRAF B ANUAR (2015489374) 4. JOMAR B SALLEH (2016822556)	<b>Lecturer's Name:</b>  Madam Zanariah Binti Zainal Abidin
<b>Course Code: ENT600</b>	<b>Student's ID:</b> As above	<b>Group:</b> NHSI10 POCKETGUIDE CT PROTOCOLS.

Criteria	Marks Allocated	Poor	Moderate	Satisfactory	Good	Excellent	C	P	A	Weighted Marks Obtained (%)
		1 mark	2 marks	3 marks	4 marks	5 marks				
Preliminary Materials: • Cover & title page • Executive summary • Table of contents	5	Poor understanding of the preliminary materials.	Moderate understanding of the preliminary materials	Satisfactory understanding of the preliminary materials.	Good understanding of the preliminary materials.	Excellent understanding of the preliminary materials.			A3	
Introduction • Problem statement/Issues • Objectives of report • Scope • Methodology • Limitations	10	0 - 2 marks Poor for introduction	3 - 4 marks Moderate for introduction	5 - 6 marks Satisfactory for introduction	7 - 8 marks Good for introduction	9 - 10 marks Excellent for introduction			A3	
NPD Process: Research & Development	20	0 - 4 marks Poor in illustrating the R&D process	5 - 8 marks Moderate in illustrating the R&D process	9 - 12 marks Satisfactory in illustrating the R&D process	13 - 16 marks Good in illustrating the R&D process	17 - 20 marks Excellent in illustrating the R&D process			A3	
NPD Process: Product /Service Design	20	0 - 4 marks Poor in product/service design	5 - 8 marks Moderate in product/service design	9 - 12 marks Satisfactory in product/service design	13 - 16 marks Good in product/service design	17 - 20 marks Excellent in product/service design			A3	
NPD Process: Concept Testing	20	0 - 4 marks Poor in illustrating the Concept Testing	5 - 8 marks Moderate in illustrating the Concept Testing	9 - 12 marks Satisfactory in illustrating the Concept Testing	13 - 16 marks Good in illustrating the Concept Testing	17 - 20 marks Excellent in illustrating the Concept Testing			A3	
NPD Process: Build Prototype (2D/3D)	10	0 - 2 marks Poor prototyping	3 - 4 marks Moderate prototyping	5 - 6 marks Satisfactory prototyping	7 - 8 marks Good prototyping	9 - 10 marks Excellent prototyping			A3	



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**Project Paper (BLUEPRINT) Rubrics**

<b>Course Name: Technology Entrepreneurship</b>	<b>Student's Name:</b> 1. AHMAD SYAKIR B MUHAMAD (2016226338) 2. FAZEMIN B CHAWFA (2016264798) 3. MUHAMMAD ASYRAF B ANUAR (2015489374) 4. JOMAR B SALLEH (2016822556)	<b>Lecturer's Name:</b>  Madam Zanariah Binti Zainal Abidin
<b>Course Code: ENT600</b>	<b>Student's ID:</b> As above	<b>Group:</b> NHS10 POCKETGUIDE CT PROTOCOLS

Criteria	Marks Allocated	Poor	Moderate	Satisfactory	Good	Excellent	C	P	A	Weighted Marks Obtained (%)
Preliminary Materials: • Cover & title page • Cover letter • Executive summary • Table of contents	10	0 - 2 marks	3 - 4 marks	5 - 6 marks	7 - 8 marks	9 - 10 marks				
		Poor understanding on the preliminary materials.	Moderate understand on the preliminary materials	Satisfactory understanding on the preliminary materials.	Good understanding on the preliminary materials.	Excellent understanding on the preliminary materials.			A3	
Main Body of the Blueprint:: • The Industry & The company • Product/Service Description • Technology Description • Market Analysis & Strategies • Manufacturing & Operations • Management Team • Financial Estimation • Project Milestones • Appendices	50	0 - 10 marks	11 - 20 marks	21 - 30 marks	31 - 40 marks	41 - 50 marks				
		<ul style="list-style-type: none"> <li>The main body of the Blueprint is poorly presented.</li> <li>Many key elements are not highlighted</li> </ul>	<ul style="list-style-type: none"> <li>The main body of the Blueprint is moderately presented.</li> <li>Few key elements are highlighted</li> </ul>	<ul style="list-style-type: none"> <li>The main body of the Blueprint is satisfactorily presented.</li> <li>Fairly highlight key elements</li> </ul>	<ul style="list-style-type: none"> <li>The main body of the Blueprint is highly satisfactorily presented.</li> <li>Good in highlighting key elements</li> </ul>	<ul style="list-style-type: none"> <li>The main body of the Blueprint is excellently presented.</li> <li>Key elements are excellently highlighted.</li> </ul>			A3	
Conclusion	15	0 - 3 marks	4 - 6 marks	7 - 9 marks	10 - 12 marks	13 - 15 marks				
		Unclear conclusion on the Blueprint	Moderate conclusion on the Blueprint	Satisfactory conclusion on the Blueprint	Good conclusion on the Blueprint	Excellent conclusion on the Blueprint			A3	
	15	0 - 3 marks	4 - 6 marks	7 - 9 marks	10 - 12 marks	13 - 15 marks			A3	

Writing Style, Spelling & Grammar		The writing lacks sentence variety and few grammatical errors	Sentences were somewhat varied, and some were inappropriate with minimal grammatical errors	Sentences were correctly constructed	Sentences were correctly constructed and well-articulated	Sentences were well written and expressed				
<b>Criteria</b>	<b>Marks Allocated</b>	<b>Poor</b>	<b>Moderate</b>	<b>Satisfactory</b>	<b>Good</b>	<b>Excellent</b>	<b>C</b>	<b>P</b>	<b>A</b>	<b>Weighted Marks Obtained (%)</b>
		<b>0 - 3 marks</b>	<b>4 - 6 marks</b>	<b>7 - 9 marks</b>	<b>10 - 12 marks</b>	<b>13 - 15 marks</b>				
Teamwork (Group Work)	<b>10</b>	Never contribute ideas and perform tasks	Rarely contribute ideas and perform tasks	Occasionally contribute ideas and perform tasks	Usually contribute ideas, perform tasks, tolerant and fair decision	Routinely contribute constructive ideas, perform all tasks, high tolerance and outstanding decision			<b>A3</b>	
<b>Total:</b>	<b>100</b>									<b>/100</b>

