UNIVERSITI SAINS MALAYSIA
GERAN PENYELIDIKAN UNIVERSITI PENYELIDIKAN
LAPORAN AKHIR

DISASTER PREPAREDNESS AND MITIGATION: A STUDY TO DEVELOP EMERGENCY COMMUNICATION SYSTEM PACKAGES USING RADIO WAVE FREQUENCY FOR DISASTER IN KELANTAN, MALAYSIA

PENYELIDIK

DR. MOHD SHAHARUDIN SHAH B. CHE HAMZAH

PENYELIDIK BERSAMA

SYIDINA ABIDIN B ABDULLAH
NIK HISAMUDDIN NIK AB. RAHMAN
SHAIK FARID B. ABDUL WAHAB
ABU YAZID B. MD. NOH
ARIFF ARITHRA B. ABDULLAH
JUNAINAH BT. NUR
NOR HAZANAH MAT RANI

2017

Abu Yazid bin Md Noh	*PPSP*	*MALAYSIA*	
Ariff Arithra bin Abdullah	*PPSP*	*MALAYSIA*	
Junainah binti Nur	*PPSP*	*MALAYSIA*	
Nor Hazanah Mat Rani	*RA*	*MALAYSIA*	

B. PROJECT ACHIEVEMENT *(Prestasi Projek)*

ACHIEVEMENT PERCENTAGE				
Project progress according to milestones achieved up to this period	**0 - 25%**	**26 - 50%**	**51 - 75%**	**76 - 100%**
Percentage (please state #%)				100
RESEARCH OUTPUT				
Number of articles/ manuscripts/ books *(Please attach the First Page of Publication)*	**Indexed Journal**		**Non-Indexed Journal**	
			In progress-under review	
Conference Proceeding *(Please attach the First Page of Publication)*	**International**		**National**	
Intellectual Property *(Please specify)*	In progress			

Number and title of Policy Paper / SOP / Technology Solution *(Please specify)*	1. 2. 3.

HUMAN CAPITAL DEVELOPMENT

Human Capital	**Number**				**Others** (please specify)
	On-going		**Graduated**		
Citizen	Malaysian	Non Malaysian	Malaysian	Non Malaysian	
No. PHD STUDENT					
Student Fullname: IC / Passport No: Student ID: Date of appointment:					
No. MASTER STUDENT					
Student Fullname: IC / Passport No: Student ID: Date of appointment:					
No. RA/RO					
Student Fullname: IC / Passport No: Student ID: Date of appointment:					
Total					

C. EXPENDITURE *(Perbelanjaan) as Borang K1(RMC)*

Budget Approved *(Peruntukan diluluskan)* : I

Amount Spent *(Jumlah Perbelanjaan)* :
Balance *(Baki)* :
Percentage of Amount Spent :
(Peratusan Belanja)

D. SUMMARY OF RESEARCH FINDINGS *(Ringkasan Penemuan Projek Penyelidikan)*

Good cooperation with Jabatan Kesihatan Negeri, Majlis Keselamatan Negara, Suruhanjaya Komunikasi dan Multimedia Malaysia and local radio amateur team, we developed a system which used the radio frequency and linkage repeater that claimed are prrof to flood and will be use in patient management during disaster.

E. PROBLEMS / CONSTRAINTS IF ANY *(Masalah/ Kekangan sekiranya ada)*

During emprical phase, not much problem or issue and most of them could be manage by the reseacher and his team

D. SUMMARY OF RESEARCH FINDINGS *(Ringkasan Penemuan Projek Penyelidikan)*

Developed Emergency communication system using the radio frequency and linkage reapeter with dedicated Frequency giving by MCMC

Date : 31/5/2016
Tarikh

Project Leader's Signature:
Tandatangan Ketua Projek

F. COMMENTS, IF ANY/ ENDORSEMENT BY RESEARCH MANAGEMENT CENTER (RMC)
(Komen dan Pengesahan oleh Pusat Pengurusan Penyelidikan)

.....

.....

.....

Name:
Nama:

Date:
Tarikh:

END OF TRGS REPORT

Project Title: To develop emergency communication system packages using radio wave frequency for disaster: A study in Kelantan, Malaysia.

A. Project Information

Start Date : 1/04/2015

End Date : 31/03/2016

Extension Date : 31/03/2016

Project Status : Completed

Project Leader : Mohd Shaharudin Shah Che Hamzah

I/C Number :

University : Universiti Sains Malaysia

Address : Jabatan Perubatan Kecemasan, Pusat Pengajian Sains Perubatan (PPSP), Kampus Kesihatan USM, Kubang Kerian, Kelantan

Contact number :

Project Members :

Syidina Abidin bin Abdullah	YDP KELAB RADIO AMATUR DAN REAKRASI KOTA BHARU (ARKB)	MALAYSIA
Nik Hisamuddin Nik Ab. Rahman	PPSP	MALAYSIA
Shaik Farid bin Abdul Wahab	PPSP	MALAYSIA
Abu Yazid bin Md Noh	PPSP	MALAYSIA
Ariff Arithra bin Abdullah	PPSP	MALAYSIA
Junainah binti Nur	PPSP	MALAYSIA
Norhazanah Mat Rani	RA (DAILY BASIS)	MALAYSIA

B. Project Achievement

Project Progress : 100%

Research Output : Indexed Journal (__), Non-indexed Journal (1), Conference Proceedings (__), Book Chapter (__),....

Talent : RA (1), PhD student (__), Master student (__)

C. Expenditure

Budget Approved :

Amount Spent :

Balance :

% of Amount Spent :

Summary of Research Findings

1.0 Introduction

The December 2014 flood incidence is identified as the worst unexpected natural calamity ever experienced by the country in decades. The heavy downpours caused severe flooding in several states especially Kelantan, The flood affected thousands of people, with nearly 120,000 people evacuated from their home, over 150,000 people lost their property and livestock while 2000 to 3000 houses destroyed in Kelantan. Floods pose obstacles for disaster response. They can create barriers to evacuation and cause problems to transport various needed supplies. Floods also have the ability to harm infrastructure, utilities and communication. This situation would prevent news and information from being broadcasted and disseminated especially to the victims and the public in general (Penuel & Statler, 2011). Therefore, it is pertinent to identify or develop the most appropriate medium or method of disseminating information in the whole cycle of the flood; pre, during and post disaster. Effective flood warnings and communication are essential to successful flood risk management (Bradford & O'Sullivan, 2013). The main aim is to make sure the information must reach the citizens immediately in order to minimize the intensity of the disaster among the affected people (Shaw & Sharma, 2011). Communication not only requires having the proper radio and other wireless equipment, but being able to integrate, correspond and coordinate (Ohl, 2006). The most local concern issue was upsurge of critical ill patient itself during that peek time without proper communication arrangement.

2.0 Methodology

Part of major methodology obtained were used several stages as below in order to facilitate the flow of research:

1. **Propose designated places to build up linkage repeaters.**
   Three designated area will be choose among ten districts in Kelantan which are Gua Musang, Kuala Krai and Kota Bharu which are the most venerable with the coverage for the entire Kelantan

2. **Request own frequency and it's license from SKMM**
   Waiting the approval and license from SKMM to operate the system and approved with designated frequencies

3. **Appoint and training key person**
   Training the key person on how to operate the emergency radio networking system operating using own departmental SOP which develop based on standard radio communication SOP