UNIVERSITY OF WESTMINSTER

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University of Westminster
University Research Ethics Committee

Application for Research Ethics

PART A

Section 1 – PROJECT AND APPLICANT DETAILS

1.1 **Project Title: Secure Communications Protocol for Drones based on a flying Ad-Hoc Network**

1.2 **Applicant Details**	
Name: **R Wishal Samaranayake**	**University Email Address:** **w1838836@westminster.ac.uk**
Contact Address: **133/18, Thumbowila Road, Piliyandala.**	**Telephone Number:** **+94 77 591 8020**
Faculty: **Science and Technology**	
Please check the relevant box: **Undergraduate** [X] **Postgraduate** [ ] **MPhil/PhD Student** [ ] **Staff** [ ]	
I confirm I have read the University's Code of Practice Governing the Ethical Conduct of Research	**YES** [X] **NO** [ ]

1.3 Supervisor/Dean of Faculty/Faculty Research Director details

Please note that all applicants with a supervisor(s) must ensure that the supervisor signs the declaration at the bottom of this page if completing Part A only or in **Section 10.3** if completing Part B

All **staff** must ensure that their Dean of Faculty, or Faculty Research Director (or nominee), as appropriate, signs the declaration at the bottom of this page if completing Part A only or in **Section 10.3** if completing Part B

Name: **Geethapriya Liyanage**	**University Email Address:** **liyanage.g@iit.ac.lk**
Faculty: **Science and Technology**	**Telephone Number:**

PART A (Continued)

Section 2 – Project Details

2.1 Please provide a description of the background with references to relevant literature (250 words maximum):

Peter Shor, an American mathematician developed a quantum algorithm called the Shor's Algorithm. This enabled quantum computers in the future to decrypt currently used public key encryption algorithms faster than what is possible with classical computers. Because of this threat, NIST and other standards organizations standardised quantum-resistant cryptographic algorithms capable of withstanding attacks from quantum computers in the future. Since drones are an emerging field of technology and contain great possibilities in the future, networking them has been an active area of research and development. For this, the author proposes a secure communications protocol that is based on a flying ad hoc network that utilises the newly standardised quantum-resistant cryptographic algorithms to set up secure communications between drones and drone to ground control stations.

2.2. Please provide a brief description and the aims of your study (250 words maximum):

This study aims to build a secure communications protocol for drones, that is based on a flying ad hoc network and uses the newly standardised quantum-resistant cryptographic algorithm to secure communications against quantum computers in the future. The protocol will be packed into a library that can easily be used by desktop, mobile, and embedded systems to set up secure communications easily.

2.3. Please outline the design and methodology of your study (include details of the selection and recruitment of participants (if any) and details of any invasive (e.g. blood samples, inhalation/ingestion of food and/or non-food products (in abnormally higher or lower levels than normal or a different form), or intrusive (e.g. questionnaires, focus groups, interviews, etc.) procedures [attach extra information as necessary] (400 words maximum in total):

Since the project is based on a secure communications protocol for drones, there will be little to no physical requirements other than the development and testing devices. The design of the software will be done using the SSADM methodology. The library will first be built and tested on the desktop before being deployed on embedded hardware (i.e. ESP32) for further testing and benchmarking.

2.4. **Timescales**

Start Date (DD/MM/YY): **01/08/2023**

Estimated duration of work: 1 Year

Section 3 - RISK OF HARM

NOTE 1: Where indicated below applicants should check if the research will require ethical approval from a National Research Ethics Committee via the Integrated Research Application System (IRAS) - nres.queries@nhs.net.- http://www.hra-decisiontools.org.uk/ethics/
NOTE 2: The University of Westminster holds a Human Tissue Authority Licence – This licence is specifically for tissue stored at 115 New Cavendish Street in accordance with the terms of the licence – Advice must be obtained from the University Human Tissue Designated Individual (N.Presneau@westminster.ac.uk)

	RISK OF HARM (to self, colleagues, participants, environment or animals)	Yes	No	N/A
1	Will any pain or more than mild discomfort result from the study?	☐	☐	☒
2	Could the study induce any psychological stress or anxiety or cause harm or negative consequences beyond the risks encountered in normal life?	☐	☐	☒
3	Will the study involve prolonged or repetitive physical or psychological testing of human participants that may put someone at risk, e.g. use of treadmill?	☐	☐	☒
4	Will the study involve raising sensitive topics (e.g. sexual activity, drug use, revelation of medical history, bereavement, illegal activities, etc.)?	☐	☐	☒
5	Does your work involve any “relevant material” containing human cells (e.g. blood, urine, saliva, body tissues but NOT established cell-lines) from living or deceased persons (Such work must take account of the Human Tissue Act)? – See Note 1 and 2 above.	☐	☐	☒
6	Will DNA samples be taken from human participants (Such work must take account of the Human Tissue Act)? – See Note 1 and 2 above.	☐	☐	☒
7	Does your study raise any issues of personal safety for you or other researchers or participants involved in the project (Especially relevant if taking place outside working hours or off University premises)?	☐	☐	☒
8	Does your study involve deliberately misleading the participants (e.g. deception, covert observation)?	☐	☐	☒
9	Does your work involve administration of a food or non-food substance of a different type from or in abnormally higher or lower amounts than normal or one that is known to cause allergic reaction(s) or potential psychological stress?	☐	☐	☒
10	Does your study involve issues relating to personal and/or sensitive data?	☐	☐	☒
	PARTICIPANTS (and/or their records/associated data) **Does your work involve any of the following:**	**Yes**	**No**	**N/A**
11	Human participants in a health and/or social care setting (e.g. patients, those attending day centres, community care, rehabilitation centres, etc., including in the NHS, other public, private and/or voluntary sectors)? – See Note 1 above.	☐	☐	☒
12	Human participants who may be deemed vulnerable (e.g. children, people in poverty and/or with physiological or psychological impairments, persons	☐	☐	☒

	attending rehabilitation centres, persons in easily identifiable positions that could be subject to victimisation, etc.)?			
13	Expectant or new mothers?	☐	☐	☒
14	Refugees/Asylum seekers?	☐	☐	☒
15	Minors (under the age of 18 years old)?	☐	☐	☒
16	Participants in custody (e.g. prisoners or arrestees)? – See Note 1 above.	☐	☐	☒
17	Participants with impaired mental capacity (e.g. severe mental illness, brain damage, sectioned under Mental Health Act, lowered or reduced sense of consciousness)? – See Note 1 above.	☐	☐	☒
18	Animals (or animal tissue).	☐	☐	☒
INFORMATION TO PARTICIPANTS		**Yes**	**No**	**N/A**
19	Will you provide participants with a Participant Information Sheet prior to obtaining informed consent which can be taken away by the participant?	☐	☐	☒
20	Will you describe the procedures to participants in advance, so that they are informed about what to expect?	☐	☐	☒
21	Will you obtain informed consent for participation (normally written)? OR in the case of using personal data previously acquired was consent given for the reuse of the data for other research purposes?	☐	☐	☒
22	Will you tell participants that they may withdraw from the research at any time and for any reason without any impact on their care, service provision etc.?	☐	☐	☒
23	Will you give participants the option of omitting questions they do not want to answer?	☐	☐	☒
24	Will you tell participants that their data will be treated as confidential and that, if published, it will not be identifiable as theirs?	☐	☐	☒
25	Will you offer feedback to participants at the end of their participation, upon request (e.g. give them a brief explanation of the study and its outcomes)?	☐	☐	☒
26	Has external funding or collaboration been applied for/received, which requires institutional ethical consideration or approval?	☐	☐	☒