Ministry of Science and ICT

IITP Institute of Information & Communications Technology Planning & Evaluation

APPLICATION FORM
(JOINT RESEARCH)
HIGH POTENTIAL INDIVIDUALS GLOBAL TRAINING PROGRAM)

AGREEMENT
As stated above, I submit this application form to IITP that conducts "High Potential Individuals Global Training Program" supported by Ministry of Science, ICT in South Korea. IITP may disclose the information below to the public for the purpose of providing information and matching a research partnership between your institute and a Korean university. * IITP : Institute for Information & communications Technology Planning & Evaluation

Printed Name of Chief of Research	Jae Ryu	Date(mm-dd-yyyy)	01/29/2020
Signature of Chief of Research			

☞ *(Note) This application is to identify the willingness to participate in this research and to find a research partnership for research institutes in Korea. Therefore, in its sole discretion, it is acceptable to contain only minimal information. (max. 3 pages)*

1. Research Title	Development of custom-UAV platform to improve air pollution sensing						
2. Research Area	**A.I.**	**Big Data**	**Cloud Computing**	**Block Chain**	**AR/ VR**	**ICT/SW Convergence**	**Other ICT /SW**
			X			**X**	

Commented [W사1]: Check all that apply

3. Chief of research	Title	Associate Professor	Contact	E-mail : jryu@uidaho.edu
	Name	Jae Hyeon Ryu		Tel : +1-208-724-0531

4. Affiliation	Name	University of Idaho	Classification	(X) University　　( ) Research Institute ( ) Industry　　( ) ETC.

5. Capacity for students (5 or less)	2 students	**Support for students** *(all necessary)*	(X) Visa support (X) Research Mentoring (X) Research Space (X) Accessibility to Research equipment

6. Research Objective	- Developing custom-UAV platform - Developing autonomous UAV flight to monitor air pollution, such as nano-particles at different altitudes and radius of the potential hotspots - Developing software by integrating diverse sensors, including PMS7003, BME280, ADS1015, and TGS2600 at Arduino IDE. - Testing sensor fusion algorithms to maximize IMU performance at Arduino or Raspberry Pi 2/3
7. Research Summary	The low-cost autonomous air pollution sensing platform is proposed to enhance air quality monitoring and sampling. Various sensors, including SM50-Ozone Sensor (Aeroqual, 2019), SM-X Sensor (GasSensing, 2019), other OEM sensing board (Eco, 2019) are considered for Ozone level detection. Additionally, particle sensor (Shinyei Technology, 2019) and other air quality sensing devices are attached to Unmanned Aerial System (UAS, a.k.a. drone) for air quality monitoring exercises.
8. Need for funding from Korean government	$83,000 USD
9. Request for Korean Universities	- Python program skillsets to control IoT devices are preferred. - Mobile app developers are preferred. - Person who is in the field of software engineering and bigdata analytics is preferred. - Since all software and sensor control will be developed using open-source platforms, students who are familiar with shell scripting/mySQL/Jave and backend/frontend web programming is highly recommended. - The selection of students studying abroad should be conducted after mutual consultation, and please cooperate as much as possible to prepare for VISA.