



**DOST Form 3**  
**NON-R&D PROJECT PROPOSAL**  
(Technology Transfer, S&T Promotion and Linkages, Policy Advocacy,  
Provision of S&T Services, Human Resource Development and Capacity-Building)

**I. PROJECT PROFILE**

<b>(1) Program Title: Grants-in-Aid</b> <b>Project Title: Showcasing DOST Technology: Versatile Instrumentation System for Science Education and Research (VISSER)</b>				
<b>(2) Project Leader/Sex:</b> Catherine Bhel Aguila/Female <b>Agency:</b> Romblon State University – Institute of Information and Technology (RSU-IIT) <b>Address/Telephone/Fax/Email:</b> Brgy. Liwanag, Odiongan, Romblon/ 09994405164/ 09278874259 / cbaguila@rsu.edu.ph/ cbaguila03@gmail.com				
<b>(3) Cooperating Agency/ies:</b> RSU-IIT, DepEd Romblon Division, University of the Philippines-Diliman				
<b>(4) Implementing Agency</b> (Municipality / District / Province / Region) <b>Base Station:</b> Brgy. Liwanag, Odiongan, Romblon, Region-IVB <b>Other Implementation Site (s):</b> None				
<b>(5) Project Duration</b> (number of months): 1 year for project implementation 2 years for monitoring of outcomes <b>Project Start Date:</b> January 2024 <b>Project End Date:</b> January 2025				
<b>(6) Total Project Cost: PhP 2,740,580.80</b>				
<b>Implementing Agency/ies</b>	<b>PS</b>	<b>MOOE</b>	<b>EO</b>	<b>Total</b>
DOST-MIMAROPA			PhP 1,895,500.00	PhP 1,895,500.00
RSU-IIT	PhP 748,300.80	PhP 96,780.00		PhP 845,080.80
<b>TOTAL</b>	PhP 748,300.80	PhP 96,780.00	PhP 1,895,500.00	<b>PhP 2,740,580.80</b>

**II. PROJECT SUMMARY**

<b>(7) Executive Summary</b> (not to exceed 200 words)  This project aims to showcase VISSER, a DOST-funded technology, to seventeen (17) public secondary schools with STEM curriculum in the province of Romblon.  On top of the provision of VISSER kit, this project will involve VISSER’s user training for teachers who will manage the laboratory of the recipient schools. Training resource persons coming from UP-Diliman will be tapped to demonstrate how to use the kit and its modules to facilitate Science teaching and reinforce learning. This project will be conducted in partnership with the Department of Education Romblon Division Office together with the proponent which is the Romblon State University-IIT.
<b>(8) Introduction</b> (Not to exceed 15 pages)  This project aims to showcase VISSER, a DOST-funded technology, to seventeen (17) public secondary schools with STEM curriculum in the province of Romblon. The pilot schools will serve as the benchmark institution for other schools to know the features of VISSER and learn how to maximize its use in science education. Like other secondary schools in Romblon, these pilot schools struggle in teaching Science and research due to a lack of appropriate laboratory equipment, tools, and materials. While these schools have strong leadership and orientation in Science, they still use traditional teaching aids such as Manila papers and dioramas. Though these materials among textbooks, lectures, and demonstrations facilitate learning, hands-on experiences are proven more effective. Lab experiments that show how Science concepts work in real life can pique students’ interest and curiosity and can facilitate retention and analytical thinking more profoundly. With the VISSER technology, some of the traditional teaching aids of the school would be replaced with more modern modules to facilitate learning more effectively among students. Learning would more fun, and students would become more interested in pursuing careers in Science, Technology, Engineering, and Mathematics (STEM).  On top of the provision of VISSER kit, this project will involve VISSER’s user training for teachers who will manage the laboratory of the recipient schools. Training resource persons coming from UP-Diliman will be tapped to demonstrate how to use the kit and its modules to facilitate Science teaching and reinforce learning. This project will be conducted in partnership with the Department of Education Romblon Division Office together with the proponent which is the Romblon State University-IIT.  <b>Rationale/Significance</b> (Not to exceed 300 words)  Over 4,500 of the country's 13,000 high schools do not have access to a designated and well-functioning laboratory for their students. Out of these operational laboratories, 2,800 or 62% of which don't have access to more modern, and digital instruments. Although books can be used to teach science, learning is more successful when real-world examples are provided. However, due to the high expenses of buying and importing cutting-edge technology and instructional aids, specialized equipment that is required for experiments must be obtained separately and is frequently pricey. In Romblon, 25 out of 49 schools offer a senior high school curriculum. Out of these 25 schools only 17 schools have STEM curriculum. These schools with STEM curriculum only have basic laboratory instruments that can only facilitate basic research and laboratory activities such as simple extraction,

decolorization, filtering, heating, measuring, and mixing of solvents. This dilemma on top of the many challenges in Science Education such as shortage of science teachers and experts adversely affects the quality of teaching and learning of students. To address this gap, the DOST Philippine Council for Industry, Energy, and Emerging Technology Research and Development (PCIEERD) funded the development of a cheaper yet effective alternative to expensive laboratory machines and apparatus. This alternative technology is called VISSER. VISSER, or the Versatile Instrumentation System for Science Education and Research, is developed by researchers from the University of the Philippines-Diliman. It is a hand-held device and a research-grade laboratory system intended for use by high school students in the STEM track. The VISSER basic set contains sensors and modules designed for experiments following the K-12 STEM curriculum. It has over 60 experiment modules in the disciplines of biology, chemistry, physics, engineering, and environmental science. VISSER is more affordable compared with other imported science laboratory systems available in the market. In the Philippines where human resources in the field of STEM are scarce (only 189 scientists per million, Merlyn Mendiolo, 2019), ensuring competent science education will help in cultivating our youth's passion to contribute to our country's progress founded on STEM. It is in this light that this project is being forwarded.

**Objectives** (General and Specific):

The general objective of this project is to showcase the VISSER technology in selected secondary schools in Romblon in view of enhancing science teaching among the schools as benchmark institutions.

Specifically, it seeks to:

1. Improve teachers' and students' productivity and efficiency in Science education through provision of VISSER kits to seventeen (17) public secondary schools with STEM curriculum in the province of Romblon;
2. Enhance technical capability of teachers and students through tapping the technology developers from UP-Diliman to provide VISSER's users' training to operators the kit;
3. Assess the acceptability and impact of VISSER among student-users through conduct of pre- and post-evaluation activities; and
4. Strengthen partnerships with project stakeholders.

**Methodology:**

The project will be funded under the GIA program of DOST-MIMAROPA with the Romblon State University-Institute of Information and Technology (RSU-IIT) as proponent. Once this project proposal was evaluated, finalized, and recommended for approval, securing the regional director's approval and finalization of budgetary requirements will follow. Meanwhile, the DOST Romblon Provincial Office would organize project meetings, and orientation to the stakeholders of the project. Memorandum of agreement (MOA) between the DOST-MIMAROPA and the proponent will be forged and signed after both parties confirmed their commitments to the project. After securing the MOA, funds allotted for the equipment outlay of the project will be downloaded to the proponent. Upon receipt of funds, the proponent will then facilitate the procurement of the equipment under close guidance of the PSTO-Romblon. Meanwhile, the PSTO-Romblon will assist the proponent in coordinating with the technology developer to hasten the procurement process. Upon successful procurement, all the equipment will be asked to be delivered at RSU-IIT for proper inspection and inventory. Once all the equipment and tools are verified, the RSU-IIT as project proponent in partnership with the PSTO-Romblon will facilitate a turnover ceremony to the seventeen (17) schools as beneficiaries of the technology. The turnover ceremony will also include the user's training for the teachers and students who will operate the VISSER kits. The training will ensure that operators of the kit would learn how to use and maximize the kit and their modules. Resource persons from the UP-Diliman as technology developers will be tapped to provide the training. After the training, the pilot schools will be advised to conduct its own echo training activities for its students under the STEM curriculum. These echo training activities will be the counterpart of the school-beneficiaries. The PSTO-Romblon in partnership with RSU-IIT will also assist the schools during these echo training activities to ensure knowledge transfer among students.

Meanwhile, the school-beneficiaries will shoulder the transportation of the technology going to their respective schools. They will also shoulder the proper housing, protection, and maintenance of the technology to prolong its service life. Meanwhile, since the pilot schools would serve as a benchmark institution for other schools, it will be included in the agreement that the pilot schools would allow other schools to use the VISSER kit as necessitated. Other schools who wish to use the VISSER kit would be required to have a written request that would be subjected to the approval of the pilot school's principal. The pilot school on the other hand was selected under pertinent criteria. It should have the need for modern science teaching aids. It should have strong leadership and management in terms of STEM curriculum and senior high school strand. It should have a decent and functional laboratory/area for experiments and have the willingness to house the technology and open its school for other schools who wish to use the technology.

The RSU-IIT and the PSTO-Romblon will also assign staff to closely monitor the project and ensure the deliverables are met. Toward the end of the project duration, an impact assessment will be done by the RSU-IIT in partnership with the PSTO-Romblon to measure its success and get feedback from students. A survey before and after project implementation will also be conducted to measure students' awareness and appreciation of STEM and research subjects.

**Expected Outputs (6Ps):**

1. People Service – 17 teacher-coordinators from the pilot school; at least 30 students from the pilot school; 1 DepEd-Romblon Division coordinator
2. Place and Partnership – RSU-IIT; DepEd-Romblon Division

**Potential Outcomes:**

1. showcased 1 DOST-funded technology namely VISSER kit to 17 public schools in Romblon
2. deployed at least 2 experts from UP-Diliman to provide VISSER's users training to teachers and students
3. conducted 1 users' training to at least 2 teachers from the pilot school and 10 teachers as representatives from the other secondary schools in Romblon
4. served at least 30 students from the pilot school through the VISSER kit
5. strengthened partnership with project stakeholders.

**Potential Impacts (2Is):**

Social Impact

1. improved STEM teaching among the priority schools
2. increased awareness and appreciation of students on STEM and research subjects
3. empowered teachers to administer STEM teaching using modern laboratory technology

Economic impact

1. increase in the number of human resources in the field of STEM to help in spurring our country's progress that is founded on STEM

**Target Beneficiaries:**

This project aims to showcase VISSER, a DOST-funded technology, to seventeen (17) public secondary schools with STEM curriculum in the province of Romblon. The pilot schools will serve as the benchmark institution for other schools to know the features of VISSER and learn how to maximize its use in science education.

**Sustainability Plan** (if applicable):

Monitoring of the project during the implementation will be done by PSTO-Romblon. The assigned staff from the PSTO in partnership with RSU-IIT will ensure that the assistance provided is utilized to the maximum and all project deliverables are realized according to schedule. Outcomes and impacts of the project will also be recorded, analyzed, and evaluated for possible policy-making, and future project endeavors that would adopt similar methodologies. The DepEd-Romblon Division Office will also be enjoined to create a memo that recommends the pilot school to regularly use and maintain the VISSER kit. Other secondary schools would also be encouraged to adopt the said technology and proliferate the kit to enhance science teaching among schools.

**Gender and Development (GAD) Score** (refer to the attached GAD checklist):

**(9) Workplan** (See Form 5)

**(10) Project Management** (not to exceed one page)

**III. OTHER SUPPORTING DOCUMENTS REQUIRED** (Please refer to page 2 for the additional necessary documents.)



## DOST Form 4

**DEPARTMENT OF SCIENCE AND TECHNOLOGY**  
**Project Line-Item Budget**  
**CY 2023**

Program Title : Grants-in-Aid (GIA)  
 Project Title : Showcasing DOST Technology: Versatile Instrumentation System for Science Education and Research (VISSER)  
 Implementing Agency : DOST-MIMAROPA  
 Total Duration : 1 year for project implementation / 2 years for monitoring of outcomes  
 Cooperating Agency : Romblon State University - Institute of Information and Technology (RSU-IIT)  
 Project Leader : Catherine Bhel Aguila  
 Monitoring Agency : DOST-MIMAROPA PSTO-Romblon

	<b>DOST-MIMAROPA</b>		<b>RSU-IIT</b>	
<b>I. Personal Services</b>	P		P	
1 Project Leader @ PhP8,800/month x 12 months				105,600.00
2 System Specialists @ PhP 26,779.20/month x 12 months				642,700.80
<b>Sub-total for PS</b>	<b>P</b>	<b>-</b>	<b>P</b>	<b>748,300.80</b>
<b>II. Maintenance and Other Operating Expenses</b>				
Traveling Expenses				
Local				40,500.00
Supplies and Materials Expenses				5,000.00
Fuel, Oil, and Lubricants Expenses				1,000.00
Printing and Publication Expenses				250.00
Representation Expenses (e.g. food for meetings, etc.)				50,030.00
<b>Sub-Total for MOOE</b>	<b>P</b>	<b>-</b>	<b>P</b>	<b>96,780.00</b>
<b>III. Equipment Outlay</b>				
17 units VISSER 2.0 (JHS + SHS) Comprehensive Kit (@111,500.00/unit)	P	1,895,500.00	P	
Inclusive of accessories and consumables, shipping fee, and training fee				
Each Kit is inclusive of the following:				
<i>Handheld Device</i>				
*1 x Handheld Data-Logger Device *1 x Handheld Power Supply *Sensors and Set-ups *1 x Weight Sensor *1 x pH Sensor *1 x Conductivity Probe *1 x Digital Microscope *1 x Pressure Sensor *3 x Temperature Sensors *1 x Adjustable Power Box *1 x Voltmeter *1 x Distance Sensor *1 x Cart-and-Track Set-up *1 x Series and Parallel Circuits Set-up *1 x Ammeter *1 x Relative Humidity Sensor *1 x Laser Light Box *1 x Electric Generator Set-up *1 x Magnetic Field Sensor *1 x Custom Breadboard				
<i>Laboratory Manuals</i>				
*1 x User Manual *1 x Set of Grade 7 Manuals *1 x Set of Grade 8 Manuals *1 x Set of Grade 9 Manuals *1 x Set of Grade 10 Manuals *1 x Set of Earth and Life Science Manuals *1 x Set of Physical Science Manuals *1 x Set of Gen. Biology Manuals *1 x Set of Gen. Chemistry Manuals *1 x Set of Gen. Physics Manuals				
<b>Sub-Total for EO</b>	<b>P</b>	<b>1,895,500.00</b>	<b>P</b>	<b>-</b>
<b>GRAND TOTAL</b>	<b>P</b>	<b>1,895,500.00</b>	<b>P</b>	<b>845,080.80</b>

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 Certified Funds Available:

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**LOU V. FOJA**  
 Head, Romblon State University Budget Unit

\_\_\_\_\_  
**JEFFREY D. VARELA**  
 Chief Administrative Officer, DOST-MIMAROPA

Approved by:

Approved by:

\_\_\_\_\_  
**DR. MA. JOSEFINA P. ABILAY**  
 Regional Director, DOST-MIMAROPA



**DOST Form 5**  
**A – PROJECT WORKPLAN**

**(1) Program Title:** Grants-in-Aid (GIA)

**(2) Project Title:** Showcasing DOST Technology: Versatile Instrumentation System for Science Education and Research (VISSER)

**(3) Project Duration (number of months):** 12 months implementation & 24 months monitoring

**(4) Project Start Date:** December 2023

**(5) Project End Date:** December 2025

(6) OBJECTIVES	(7) TARGET ACTIVITIES	(8) TARGET ACCOMPLISHMENTS (quantify, if possible)	2023					2024					2025				
			Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
Improve teachers' and students' productivity and efficiency in Science education through provision of VISSER kits to seventeen (17) public secondary schools with STEM curriculum in the province of Romblon	Procurement, delivery, installation, and test run of VISSER  Turnover ceremony of VISSER  Techno forum on DOST-funded technology namely VISSER	Properly installed and working VISSER kits in each of the 17 selected public secondary schools  served at least 30 students from the pilot school through the VISSER kit				x	1	x				1					
Enhance technical capability of teachers and students through tapping the technology developers from UP-Diliman to provide VISSER's users' training to operators the kit	Training on the operation and maintenance of VISSER Technology	conducted 1 users' training to at least 2 teachers from the pilot school and 10 teachers as representatives from the other secondary schools in Romblon  deployed at least 2 experts from UP-Diliman to provide VISSER's users training to teachers and students								x	x	2	x	x	x	x	4
Assess the acceptability and impact of VISSER among student-users through conduct of pre- and post-evaluation activities;	Pre- and Post-evaluation activities to assess the acceptability and impact of VISSER among student-users	conduct of at least 1 pre- and post-evaluation activities to assess the acceptability and impact of VISSER to at least 50 student-users													x	x	2
Strengthen partnerships with project stakeholders	Project meetings and roundtable discussions	Conducted at least 2 project meetings and roundtable discussions							x	x		2					

**DOST Form 5**  
**B – EXPECTED OUTPUTS**

**(1) Program Title:** Grants-in-Aid (GIA)

**(2) Project Title:** Showcasing DOST Technology: Versatile Instrumentation System for Science Education and Research (VISSER)

**(3) Project Duration (number of months):** 12 months implementation & 24 months monitoring

**(4) Project Start Date:** December 2023

**(5) Project End Date:** December 2025

(9) EXPECTED OUTPUTS (6Ps)	2023 Objectively Verifiable Indicators (OVIs)					2024 Objectively Verifiable Indicators (OVIs)					2025 Objectively Verifiable Indicators (OVIs)				
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
<b>Publications</b> At least one news article about the project							x			1					
<b>Patents/IP</b> None															
<b>Products</b> None								x	x	2	x	x	x	x	4
<b>People Services</b> At least 30 students, 10 teachers, and 2 RSU faculty								x	x						
<b>Places and Partnerships</b> RSU-IIT, DepEd Romblon Division, University of the Philippines-Diliman				x	1		x			1					
<b>Policy</b> None															
<b>(10) POTENTIAL IMPACTS (2Is)</b>															
<b>Social Impact</b> 1. improved STEM teaching among the priority schools 2. increased awareness and appreciation of students on STEM and research subjects 3. empowered teachers to administer STEM teaching using modern laboratory technology											x	x	x	x	4
<b>Economic Impact</b> 1. increase in the number of human resources in the field of STEM to help in spurring our country's progress that is founded on STEM											x	x	x	x	4

**DOST Form 5**  
**C – RISKS AND ASSUMPTIONS**

(1) Program Title: Grants-in-Aid (GIA)

(2) Project Title: Showcasing DOST Technology: Versatile Instrumentation System for Science Education and Research (VISSER)

(3) Project Duration (number of months): 12 months implementation & 24 months monitoring

(4) Project Start Date: December 2023

(5) Project End Date: December 2025

OBJECTIVES	(11) RISKS AND ASSUMPTIONS	(12) ACTION PLAN (use separate sheet if necessary)
enhance technical capability of teachers and students through tapping the technology developers from UP-Diliman to provide VISSER's users' training to operators the kit	Failure of the beneficiaries to learn the appropriate ways to operate and maintain the technology may result to limited use of the technology	Close monitoring with project proponent and beneficiaries Provision of echo training and refresher course to end users
assess the acceptability and impact of VISSER among student-users through conduct of pre- and post-evaluation activities	Failure of the students to appreciate STEM and research subjects may result to limited use of the technology	Conduct of Techno forum on VISSER and career path orientation to present the benefits and advantages of STEM and research fields