



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

	(1) Program Title: GIA Project Title: S&T Intervention Support to Conduct School-Based Training Workshop on Mechatronics and Robotics Cum 21st Century Skills Leadership Training and Symposium to the Three (3) clusters of Fifteen (15) high schools in West Coast of Palawan				
	(2) Project Leader/Sex: Engr. Pacifico T. Sariego III Agency (smallest unit): DOST PSTO-Palawan Address/Telephone/Fax/Email (Barangay, Municipality, District, Province, Region): Government Center, Brgy. Sta. Monica, Puerto Princesa City, Palawan				
	(3) Cooperating Agency/ies: Apurawan National High School				
	(4) Implementing Agency (Municipality / District / Province / Region) Base Station: <u>Brgy. Apurawan, Aborlan, Palawan</u> Other Implementation Site (s): <u>Brgy. Berong, Quezon and Brgy. Alfonso XIII, Quezon, Palawan</u>				
	(5) Project Duration (number of months): <u>36</u> Project Start Date: <u>January 2024</u> Project End Date: <u>January 2027</u>				
	(6) Total Project Cost: <u>P4,899,600.00</u> (indicate Counterpart Funds; use Form 4 for the Line-Item Budget)				
	Implementing Agency/ies	MOOE	Equipment Outlay	Capital Outlay	Total
A. Requested Fund					
DOST MIMAROPA	100,000.00	813,000.00			913,000.00
B. Counterpart Fund 1					
Khalsa Aid International	236,600.00				236,600.00
DepEd Palawan	150,000.00			3,600,000.00	3,750,000.00
TOTAL	1,299,600.00	813,000.00		3,600,000.00	4,899,600.00

II. PROJECT SUMMARY

(7) Executive Summary (not to exceed 200 words)	<p>This project aims to support the expansion of conducting School-Based Mechatronics and Robotics Training in the 15 high schools of West Coast Palawan. It was due to the successful collaboration of PSTO-Palawan, Western Philippines University, Khalsa Aid International, ChampionYouth Philippines and DepEd Palawan in helping schools in GIDA. This project will break the norms, build interest, and promote the innovation and modern approach of robotics that aims to be applied to their science-related research.</p>
(8) Introduction (Not to exceed 15 pages)	<p>Rationale/Significance (Not to exceed 300 words)</p> <p>Since March 2023, we started to conduct School-Based Mechatronics and Robotics Training focusing on 2 campuses; the Apurawan National High School and Quezon National High School. As the school year 2023-2024 started, through the efforts of PSTO-Palawan this training expanded to the rest of the high schools in the West Coast of Palawan. Khalsa Aid International and ChampionYouth Philippines saw the potential and relevance of this training that's why they already gave a total of ten (10) sets of Arduino kits that have been useful to the previous sets of training but now targeting the 15 campuses mainly in GIDA, this training demands more electronics and robotics equipment.</p>



As a result of the previous training, more and more students have been engaged to explore basic mechatronics and robotics. Most of the Grade 7 and 8 students of Apurawan National High School allot their extra time after their class to go to their science laboratory to explore the allotted kits in their campus with the guidance of the science teacher.



For the expansion of the training, these are the proposed school cluster for SY. 2023-2024:

PROPOSED SCHOOL CLUSTERS

Cluster 1 Host: Apurawan National High School

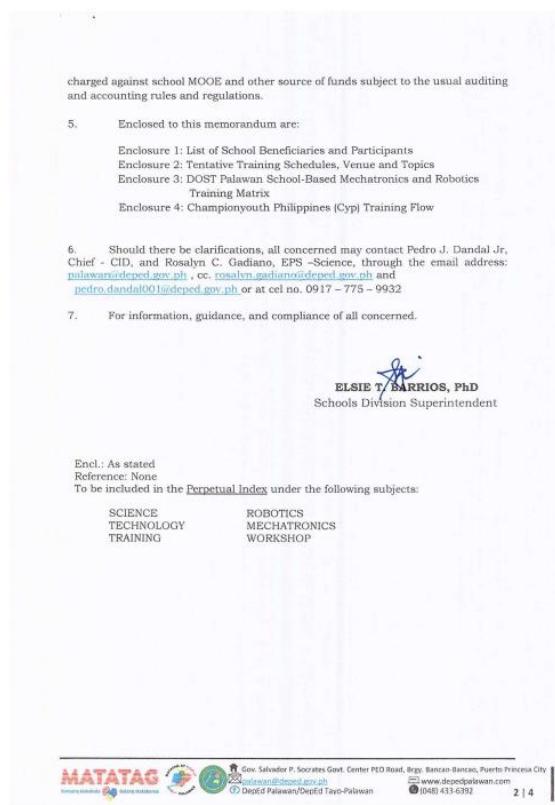
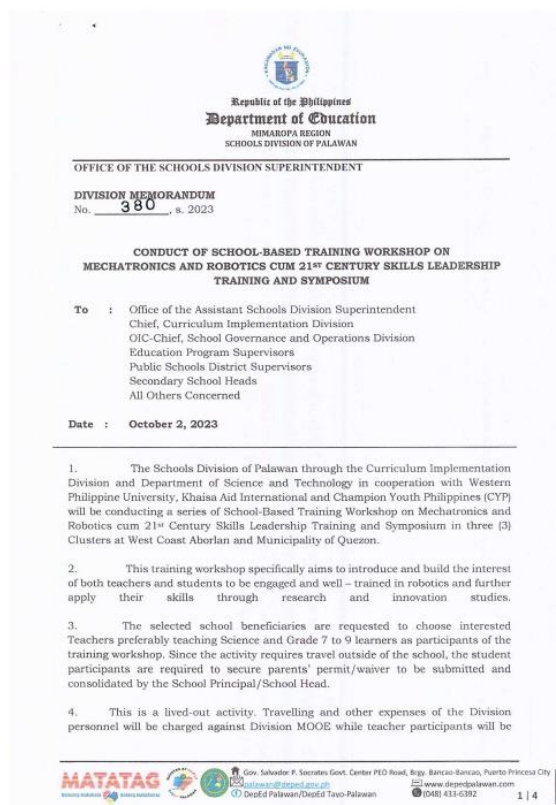
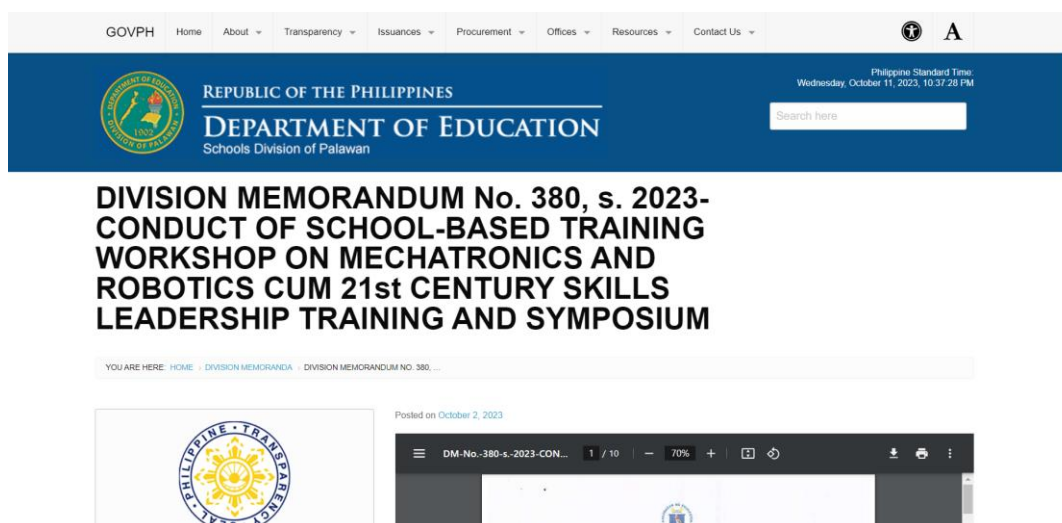
- Apurawan National High School
- Bubusawin National High School
- Culandandum National High School

Cluster 2 Host: Federico Del Rosario (formerly Berong) National High School

- Federico G. Del Rosario National High School
- Quezon - Aramaywan National High School
- Isugod National High School

- Cluster 3 Host: Quezon National High School
- Little Baguio Maasin National High School
 - Pinaglabanan National High School
 - Quezon National High School
 - Quezon – Panitian National High School
 - Malatgao National High School
 - Tagusao National High School
 - Sowangan National High School
 - Calumpang National High School
 - Quinlogan National High School

With the division memorandum no. 380, s. 2023 of the Department of Education - Schools Division of Palawan (DepEd Palawan) strengthens the collaboration of the stakeholders and brings more excitement to the student and teacher participants of the training.



DepEd Palawan, WPU, Khalsa Aid, and CYP are really looking forward to creating great impact to the young minds of this generation. With this project, we can provide additional support to materials and equipment needed to make this training more efficient.

Objectives (General and Specific):

General Objectives:

To provide support to the expansion of conducting School-based Mechatronics and Robotics Training in fifteen (15) High school campuses of the west coast area of Palawan.

Specific Objective:

- 1. To provide two (2) sets of electronics and robotics equipment needed for the series of School-Based Mechatronics and Robotics Training**

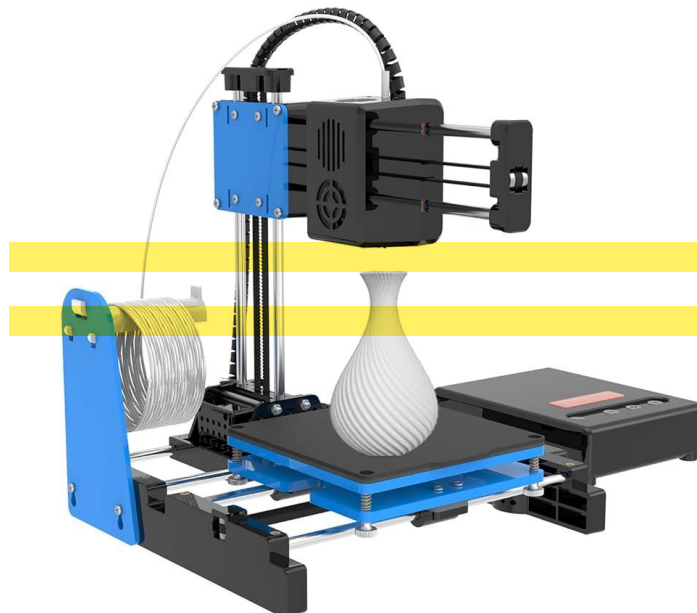
1 set of Training Materials and Equipment consist the following:

<i>Item Number</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>
BASIC ELECTRONICS			
1	Breadboard set Electronic Component Starter Kit	30	set
2	Li-On Battery	40	pcs
3	Li-On Battery holder	10	pcs
4	Breadboard MB102	40	pcs
5	Universal PCB (5x7 Perfboard Plates)	60	pcs
6	Soldering Iron Set	10	pcs
7	Soldering Lead (0.8mm)	10	rolls
8	Soldering Paste	10	pcs
9	Stranded Wires AWG 22	10	set
10	Set of pliers	10	set
11	Screwdriver set	10	set
MICROCONTROLLER PROGRAMMING			
12	GizDuino + 644 Starter Kit with 2X16 LCD	50	Kits
ROBOTICS			
13	Smart Robot Car 2wd Chassis Kit V.2	30	Kit
3D PRINTING			
14	1kg Polylactic Acid (PLA) 3D Printing Filament	1	kg
15	3D Printer Mini Desktop Printing Machine	10	units

This set of electronics and robotics equipment will be useful during training and will be enough to cater to one hundred (100) participants in every school cluster.



Arduino and Smart Robot Car Kits



Mini 3D Printer

2. To support the School-based Mechatronics and Robotics training in handling 15 campuses of West Coast Palawan
3. To conduct pre- and post-training evaluations to measure the level of awareness of both student and teacher participants regarding the training.
4. To create training metrics together with DepEd Palawan to assess the impact of the training on the participants.

Department of Education – Schools Division of Palawan was established on 1902, originally in Cuyo, Palawan when the civil government was established. 1903, the name of the province was changed from Paragua to Palawan pursuant to Act 1363 of the Philippine Commission, since then the division office was transferred from Cuyo to Puerto Princesa. As of now, there are already 646 elementary schools and 172 secondary schools with a total of 818 both elementary and secondary schools. Also, out of this institution was borne another Division which is the City Schools Division of Puerto Princesa relative to RA 5906.

Methodology:

1. Technology Description

- School-based mechatronics and robotics training needed Arduino kits, robotics kits, and 3D printers that will engage both student and teacher participants to explore and apply this to science-related research. Arduino kits and Smart Robot car Kits will give hands-on experience in programming, electronics assembling, and robotics knowledge. Mini 3D Printer Technology will allow them to quickly prototype their idea to have personalized design and produce in small batches while having their manufacturing costs and lead times decreased.

2. Value Proposition

- Seeing this kind of training in schools of GIDA will bring out-of-the-box opportunity for both student and teacher participants. It will build interest in science-related field and will be a help to the teachers in promoting science, technology and innovation. Together with this training is the promotion of DOST-SEI Undergraduate Scholarship Program for G12 students and the STARBOOKS intervention.

3. Organizational Structure of DepEd Palawan

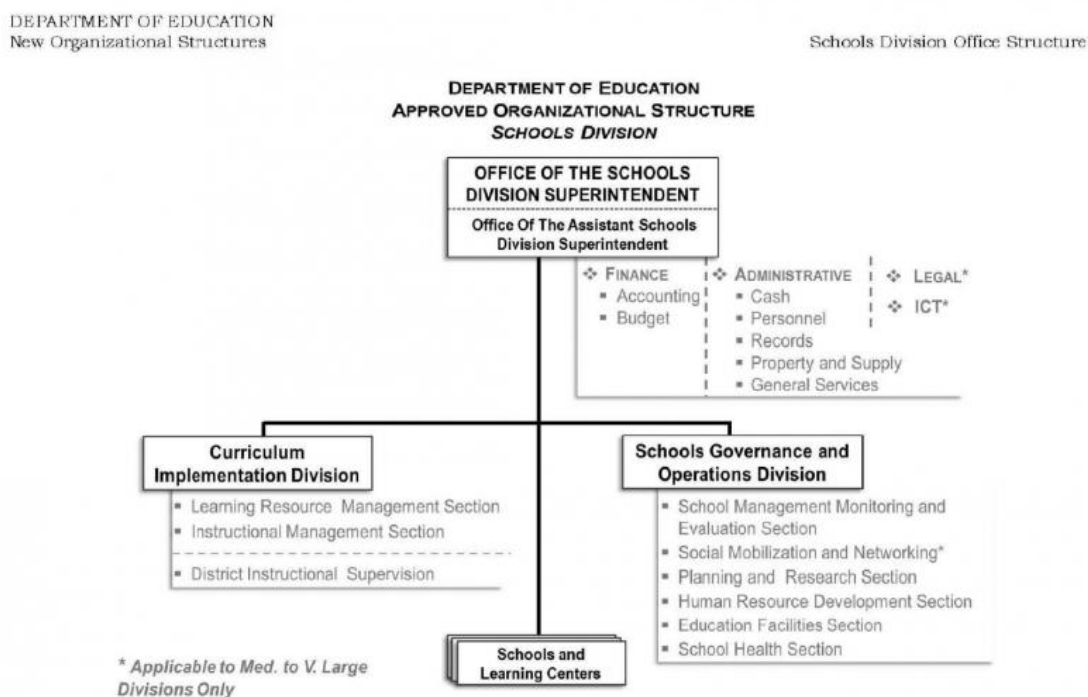


Fig. 16 DepEd Palawan Organizational Chart

4. Risks Analysis

Risk	Steps to Mitigate Risk
1. Breakdown of Arduino kits.	Contact the supplier to fix the problem if within the warranty period. Strictly implement preventive maintenance of equipment.
2. Breakdown of Smart Robot Car.	Contact the supplier to fix the problem if within the warranty period. Strictly implement preventive maintenance of equipment.
3. Breakdown of Mini 3D Printer	Contact the supplier to fix the problem if within the warranty period.

	Strictly implement preventive maintenance of equipment.
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Expected Outputs (6Ps):*People Service:*

This project will help the teachers of 15 campuses to promote, teach, and expose the students to the science, technology and innovation through robotics technology.

Place and Partnership:

This project will be well-coordinated in collaboration with Western Philippines University (WPU), Khalsa Aid International, ChampionYouth Philippines (CYP) and Department of Education – Schools Division of Palawan (DepEd Palawan).

Policy:

This project will craft the policy recommendation to institutionalize this training to be part of the school curriculum of all the elementary and high school campuses within the school division of Palawan.

Potential Outcomes:

- Two (2) sets of robotics and mechatronics materials and equipment provided.
- Supported the School-based robotics and mechatronics training for SY. 2023-2024.
- Increase the interest and awareness of students on science, technology, and innovation.

Operational Capacities

The proposed one (1) set of robotics and mechatronics equipment is designed to cater to one hundred (100) participants in of each two (2) remaining school clusters. This whole intervention will cater with a total of three hundred (300) participants.

Potential Impacts (2Is):**Social Impact**

This project will introduce science-related fields, build interest to both student and teacher participants, and massive movement to promote science, technology, and innovation in GIDA communities.

Discussion on the results of related project handled by the same proponent (if any):

Target Beneficiaries:

This project will give benefits to the 15 school campuses in the west coast area of Palawan:

Enclosure 1: List of School Beneficiaries and Participants

Schools Beneficiaries	No. of Teachers	No. of Learners (Grades 7 - 9)	Total
Cluster 1: West Coast Aborian			
Apurawan NHS	5	45	50
Bubusawin NHS	2	18	20
Culandanum NJS	3	27	30
TOTAL			100
Cluster 2: Municipality of Quezon – South			
Berong NHS	4	36	40
Quezon – Aramaywan NHS	3	32	35
Isugod NHS	2	23	25
TOTAL			100
Cluster 3: Municipality of Quezon - North			
Little Baguio Maasin NHS	2	8	10
Pinaglabanan NHS	2	9	11
Quezon NHS	3	17	20
Quezon – Panitian NHS	2	8	10
Malatgao NHS	2	7	9
Tagusao NHS	2	10	12
Sowangan NHS	2	6	8
Calumpang NHS	2	6	8
Quinlogon NHS	2	10	12
TOTAL			100

We have a school host for each cluster with one hundred (100) student and teacher participants. Khalsa Aid International commits to providing 1 set of electronics and robotics kits to support Cluster 1 in Apurawan National High School, and through this project aims to provide another 2 sets for the remaining 2 clusters in Federico Del Rosario National High School and Quezon National High School.

Sustainability Plan (if applicable):

The operation of mechatronics and robotics equipment for School-based robotics and Mechatronics training will be handled by the trainer from Western Philippines University (WPU) and will be monitored by the ChampionYouth Philippines (CYP). DepEd Palawan will provide the training venue, and rooms where the materials and equipment will be stored and encourage both the student and teacher participants to join the training.

The Department of Science and Technology will facilitate the procurement of equipment for this project. DOST will assign a technical staff to facilitate the implementation of the project. The Project Manager assigned in the area of West Coast of Palawan will supervise and monitor their training and facility.

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

(9) Workplan (See Form 5)

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

Western Philippines University (WPU) commits to design the training flow for School-based Mechatronics and Robotics Training, provide instructors/resource speakers needed for the robotics training considering their availability to the training schedule provided, and utilize all provided materials and equipment for the training sessions.

Khalsa Aid International commits to provide one (1) set of mechatronics and robotics equipment for the

first school cluster and it will be monitored by the ChampionYouth Philippines (CYP).

Department of Education – Schools Division of Palawan (DepEd Palawan) gives support to coordinate the training of every target campus to join the robotics training, provide a room/venue for each cluster host where the training will be conducted and where the equipment will be stored, and provide one hundred (100) student and teacher participants from each cluster for robotics training..

DOST Palawan stationed the West Coast Project Manager in the Brgy. Apurawan to regularly supervise and monitor the said project.

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 2024

Program Title : GIA
Project Title : S&T Intervention Support to Conduct School-Based Training Workshop on Mechatronics and Robotics Cum 21st Century Skills Leadership Training and Symposium to the Three (3) Clusters of Fifteen (15) high schools in West Coast of Palawan.
Implementing Agency : DOST-MIMAROPA
Total Duration : 3 YEARS
Current Duration : January 2024 - January 2027
Cooperating Agency : DepEd Palawan
Program Leader :
Project Leader : Engr. Pacifico T. Sariago III
Monitoring Agency : DOST-MIMAROPA

DOST	Counterpart Funding	
	Khalsa Aid International	DepEd Palawan

I. Maintenance and Other Operating Expenses

Direct Cost

Traveling Expenses	44,400.00		
Communication Expenses			
Postage and Courier Expenses	5,000.00		
Mobile Expenses	30,600.00		
Office Supplies Expenses, Gasoline, Oil and Lubricants Expenses	10,000.00		150,000.00
Representation Expenses (e.g. food for meetings, etc.)	10,000.00		
Sub-Total for MOOE	P 100,000.00	P -	P 150,000.00

II. Equipment Outlay

Other Machinery and Equipment	2 sets	P 813,000.00	P 236,600.00	P -
1 set of Robotics Kit				
Breadboard set Electronic Component Starter Kit	30 set			
Li-On Battery	40 pcs			
Li-On Battery holder	10 pcs			
Breadboard MB102	40 pcs			
Universal PCB (5x7 Perfboard Plates)	60 pcs			
Soldering Iron Set	10 pcs			
Soldering Lead (0.8mm)	10 rolls			
Soldering Paste	10 pcs			
Stranded Wires AWG 22	10 set			
Set of pliers	10 set			
Screwdriver set	10 set			
GizDuino + 644 Starter Kit with 2X16 LCD	50 Kits			
Smart Robot Car 2wd Chassis Kit V.2	30 Kit			
1kg Polylactic Acid (PLA) 3D Printing Filament	1 kg			
3D Printer Mini Desktop Printing Machine	10 units			
Sub-Total for EO		P 813,000.00	P 236,600.00	P -

III. Capital Outlay

Building	P -	P -	P 3,600,000.00
GRAND TOTAL	P 913,000.00	P 236,600.00	P 3,750,000.00

Certified Funds Available:

CHITA D. UMALI
Accountant, DepEd Palawan

SANDEEP SINGH JOSHI
Coordinator, Khalsa Aid Philippines

JEFFREY D. VARELA
Chief Administrative Officer, DOST MIMAROPA

Approved by:

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



(4) Project Start Date: January 2024 **(5) Project End Date:** January 2027

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DOST Form 5

B – EXPECTED OUTPUTS

(1) Program Title: GIA

(2) Project Title: S&T Intervention Support to Conduct School-Based Training Workshop on Mechatronics and Robotics Cum 21st Century Skills Leadership Training and Symposium to the Three (3) Clusters of Fifteen (15) high schools in West Coast of Palawan

(3) Project Duration (number of months): 36 months

(4) Project Start Date: January 2024

(5) Project End Date: January 2027

(9) EXPECTED OUTPUTS (6Ps)	Y1 Objectively Verifiable Indicators (OVIs)					Y2 Objectively Verifiable Indicators (OVIs)					Y3 Objectively Verifiable Indicators (OVIs)				
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
Publications															
Patents/IP															
People Services <ul style="list-style-type: none"> - This project will help the teachers of 15 campuses to promote, teach, and expose the students to the science-related field. 															
Places and Partnerships <ul style="list-style-type: none"> - This project will be a well-coordinated project in collaboration with Western Philippines University (WPU), Khalsa Aid International, ChampionYouth Philippines (CYP) and Department of Education – Schools Division of Palawan (DepEd Palawan). 															
Policy <ul style="list-style-type: none"> - This project will craft the policy recommendation to institutionalize this training to be part of the school curriculum of all the elementary and high school campuses within the school division of Palawan. 															
(10) POTENTIAL IMPACTS (2Is)															
Social Impact <ul style="list-style-type: none"> - This project will introduce science- 															

[illegible]

DOST Form 5
C – RISKS AND ASSUMPTIONS

(1) Program Title: GIA

(2) Project Title: S&T Intervention Support to Conduct School-Based Training Workshop on Mechatronics and Robotics Cum 21st Century Skills Leadership Training and Symposium to the Three (3) Clusters of Fifteen (15) high schools in West Coast of Palawan

(3) Project Duration (number of months): 36 months

(4) Project Start Date: January 2024

(5) Project End Date: January 2027

OBJECTIVES	(11) RISKS AND ASSUMPTIONS	(12) ACTION PLAN (use separate sheet if necessary)
To provide two (2) sets of electronics and robotics equipment needed for the series of School-Based Mechatronics and Robotics Training	Breakdown of Arduino kits	Contact the supplier to fix the problem if within the warranty period. Strictly implement preventive maintenance of equipment.
	Breakdown of Smart Robot Car	Contact the supplier to fix the problem if within the warranty period. Strictly implement preventive maintenance of equipment.
	Breakdown of Mini 3D Printer	Contact the supplier to fix the problem if within the warranty period. Strictly implement preventive maintenance of equipment