Ceibal

Technical Specifications

CPP 2023

Robotics kits

Digital Laboratories

I+D+i

+598 2601 5773 | Av. Italia 6201, Edificio Los Ceibos, LATU, C.P. 11.500

www.ceibal.edu.uy

1. Call aim

Centro Ceibal para el Apoyo a la Educación de la Niñez y la Adolescente (hereinafter *Ceibal*) announces a Public Pricing Tender (CPP) for the acquisition of educational kits of robots with assembling parts to be delivered to primary and secondary schools throughout the country.

2. Products to quote

Bidders may submit offers for one or both items requested in this document.

Centro Ceibal reserves the right to award one or both products, not being obliged to award both products.

2.1 Item A

The products included in this purchase process are the following LEGO Education Robotics Kits:

A1- LEGO SPIKE Prime Kits

A2- LEGO SPIKE Essential Kits

2.2 Item B

Robotics kits must be made up of assembly parts, mobile mechanisms, motors, sensors, control module and power supply. In addition, the robot must be able to execute different movements with the intention of performing a task. The products offered must comply with the technical details specified according to the mandatory requirements and evaluation criteria specified in subsection 3.2.

3. Technical specifications

3.1 Item A

LEGO Education robotics kits correspond to LEGO SPIKE Prime and LEGO Essential products.

A1. **LEGO Education SPIKE Prime**

A2. **LEGO Education SPIKE Essential**

3.2 Item B

3.2.1 Mandatory requirements

Mandatory requirements of each kit	
# Specif.	Description
3.2.1.1	It must include constructive elements (parts and articulated mechanisms) that allow the creation of robots of different conformations by fitting and/or assembling parts.
3.2.1.2	It must include at least two continuous rotation motors, with precise speed control, that allow robots to be assembled with differential traction.
3.2.1.3	In addition to the 2 motors of item 3.1.2, it must present at least one servomotor with position (angle) control.
3.2.1.4	It must include at least one contrast or color sensor. It must be applicable to line follower robots.
3.2.1.5	It must include at least one proximity sensor: it can measure proximity by reflecting infrared light, or distance by ultrasound.
3.2.1.6	It must include at least one contact sensor.
3.2.1.7	It must include at least 2 wheels.

3.2.1.8	It must include a free-to-use block programming environment (without licensing costs).
3.21.9	It must present software compatibility with the specifications of the devices delivered by Ceibal (See: https://www.ceibal.edu.uy/es/dispositivos/clamshell)It must include a communication between the hardware and the software by cable.
3.2.1.10	It must include a communication between the hardware and the software by cable.
3.2.1.11	It must allow movement actions to be programmed based on the interpretation of data made by the sensors.
3.2.1.12	It must have an integrated and rechargeable power source.
3.2.1.13	It must have a power source with a minimum autonomy of 1 hour of continuous use.
3.2.1.14	The control module must allow the simultaneous connection of at least the following: 3 motors plus any 3 sensors.
3.2.1.15	The kit must be self-contained: no extra component will be required for its assembly, operation, energy recharge, or communication with the device where the programming is carried out.
3.2.1.16	All items listed must be in a container box.

3.2.2 Evaluation criteria

Evaluation criteria of each kit	
# Specif.	Description
3.2.2.1	Wireless communication between hardware and software.
3.2.2.2	Possibility of seeing the programming carried out in blocks as well as code in languages such as python, Java, JavaScript or others.
3.2.2.3	Software with interface in Spanish.
3.2.2.4	Screen that allows to visualize the actions carried out.
3.2.2.5	Power source with autonomy greater than 1 hour of continuous use.

3.2.2.6	Gyroscope (rotation sensor).
3.2.2.7	Accelerometer
3.2.2.8	Other actuators such as lights, sound, etc.
3.2.2.9	Software with the possibility of exporting sensor data and programming variables.
3.2.2.10	Kit with educational support material for the teacher (guides, videos, tutorials, among others).

In addition, the following aspects will be evaluated:

- Pedagogical suitability for its use by students between 6 and 14 years of age.
- Variety and quantity of parts to create various robots from the same kit.
- Ability of the robots to move on different surfaces typical of student projects: slight slopes, smooth and rough surfaces.
- Intuitive hardware and software interface for the target audience.
- Robustness of the package and of the kit components for the intended use: built-in parts, connectors, cables, accessories, sensors and actuators.

4. Offer’s submission

4.1 Item A

4.1.1 Sample of quoted products

Samples of quoted products are not required.

4.1.2 Documentation

The documentation to be presented by the bidder includes; folder with background of the bidder and price table of the products offered.

4.2.2.1 Folder with bidder's background

Provision background of quoted products in the last 24 months must be detailed.

4.2.2.2 Price table

It must be quoted in CIF Montevideo unit price in US dollars by ranges in the Price Table *"LEGO Education Robotics Kits".*

Price Table Item A: *LEGO Education Robotics Kits*				
A1. LEGO SPIKE Prime Kits				
CIF MVD offer ranges	From 0 to 300		Proposed delivery time	
	More than 301			
A2. LEGO SPIKE Essential Kits				
CIF MVD offer ranges	From 0 to 300		Proposed delivery time	
	More than 301			

4.2 Item B

4.2.1 Sample of quoted products

At the time of the bid's submission or within 10 business days of the bid's opening date (include shipping tracking along with the bid), 1 kit of each of the products quoted for Item B is requested in identical delivery conditions if awarded.
In exceptional cases and when there are justified reasons in Ceibal's opinion, the bidder may defer the delivery of samples for a reasonable period that Ceibal will evaluate.

For the delivery of samples, they must be delivered to *Proveeduría de Ceibal* (Av Italia 6201, Predio LATU, Los Ceibos building, CP 11500). The hours of attention to the public are from Monday to Friday from 9:30 am. to 4:00 pm.

4.2.2 Documentation

The documentation to be presented by the bidder includes; folder with background of the bidder, price table of the products offered and tables of compliance with specifications for assembly robotics kits.

4.2.2.1 Folder with bidder's background

Provision background of quoted products in the last 24 months must be detailed.

4.2.2.2 Price table

It must be quoted in CIF Montevideo unit price in US dollars by ranges in the Price Table "Assembly robotics kits". Rows may be added as kit models are added, always quoting the corresponding ranges according to the table.

Price table Item B: Assembly Robotics Kits				
Model 1				
CIF MVD offer ranges	From 0 to 300		Proposed delivery time	
	More than 301			
Model 2				
CIF MVD offer ranges	From 0 to 300		Proposed delivery time	
	More than 301			
Model 3				
CIF MVD offer ranges	From 0 to 300		Proposed delivery time	
	More than 301			

Model n				
Offer ranges	From 0 to 300		Proposed delivery time	
	More than 301			

4.2.2.3 Compliance table

The bidder must complete the compliance table of subsection 8.2.1 and 8.2.2 for all the requested requirements. For the evaluation team's reference, it must also be indicated in which part of the offer submitted the information corresponding to the requirement is found in the OBSERVATIONS field.

The COMPLIANCE column of the mandatory requirements will be completed with the Yes/No options. In the case of the evaluation criteria, it can be completed with the options Yes/No/Partial. In the event that compliance is partial, you must expand the information in the OBSERVATIONS column.

5. Term and form of delivery

5.1 Item A

Deliveries will be made according to the format detailed in the following table

Item A	**Desirable delivery date**
A1- LEGO SPIKE Prime Kits	60 days after award
A2- LEGO SPIKE Essential Kits	60 days after award

In the event that the bidder cannot meet these terms, he may propose a delivery term, partial deliveries that are close to the terms desired by Ceibal will be accepted.

5.1 Item B

A delivery plan must be specified for each kit model offered, and it is desirable a delivery of the total lot prior to 90 days after the award.

6. Evaluation criteria

6.1 Item A

Bids will be evaluated based on the cost proposal of the products by slots to be awarded.

6.1 Item B

6.1.1 Test users

Test users (in all their levels, profiles and sufficient numbers) are required so that Ceibal can evaluate the software, verify its benefits and compliance with the requested requirements, prior to awarding. Ceibal may request technical assistance from the bidder during this process.

6.1.2 Demos

Centro Ceibal may request a demonstration of the remote solution, after the opening of bids and after coordinating with the bidder. In the demonstration, among other aspects, all the functionalities that the software presents and the user experience in Ceibal devices will be evaluated.

6.1.3 Evaluation criteria

Without prejudice to what is established in the General Tender Document regarding the evaluation of offers, these will be evaluated taking into account compliance with the mandatory requirements and evaluation criteria.

The mandatory requirements will be evaluated in a binary way (meets/does not meet) while the evaluation criteria and samples will be evaluated with a scale from 0% to 100% with a weighting of low, medium or high as appropriate.

Once all the technical scores have been obtained, a technical-economic evaluation of the proposals submitted will be carried out, where the technical evaluation will have a weighting of 70% and the economic offer 30%. The final score of each offer, considering both the Technical Evaluation and the Economic Evaluation, will be given by the following formula: (POME/PO) * 30 + (PTO/PTOMC) * 70. In this evaluation scheme "POME" is the price of the cheapest offer, "PO" is the price of the offer being evaluated, "PTO" is the technical score of the offer being evaluated and "PTOMC" is the technical score of the best qualified offer.

7. Warranty

The bidder guarantees that in the event of award, the products to be supplied will be new, complete and of the quoted model without exception. The products will be free of defects attributable to materials, manufacturing, storage conditions (appropriate packaging, temperature and humidity), transfer or any act or omission of the manufacturer that could be manifested during the normal use of the goods. The bidder must specify the warranty period, which must be at least 12 (twelve) months from the date the products were received by Centro Ceibal.

The guarantee must include all the components of the products offered.

Within the framework of the guarantee, the maximum period for replacement of defective products will be 30 calendar days from the date of the claim.

In case of not specifying a guarantee, a guarantee of 12 (twelve) months is assumed from the date of receipt of the products.

8. Annexes

8.1 Item A

8.1.1 Price table

Price table Item A*: LEGO Education Robotics Kits*				
A1. LEGO SPIKE Prime Kits				
CIF MVD offer ranges	From 0 to 300		Proposed delivery time	
	More than 301			
A2. Kits LEGO SPIKE Essential				
CIF MVD offer ranges	From 0 to 300		Proposed delivery time	
	More than 301			

8.2 Item B

8.2.1 Compliance table: Mandatory requirements

Compliance table: Mandatory requirements of each kit			
# Specif.	Description	Compliance (Yes/No)	Observations
3.2.1.1	It must include constructive elements (parts and articulated mechanisms) that allow the creation of robots of different conformations by fitting and/or assembling parts.		
3.2.1.2	It must include at least two continuous rotation motors, with precise speed control, that allow robots to be assembled with differential traction.		
3.2.1.3	It must present in addition to the 2 engines of the item 3.1.2, at least one servomotor with position (angle) control.		

3.2.1.4	It must include at least one contrast or color sensor. It must be applicable to line follower robots.		
3.2.1.5	It must include at least one proximity sensor: it can measure proximity by reflection of infrared light, or ultrasound distance.		
3.2.1.6	It must include at least one contact sensor.		
3.2.1.7	It must include at least 2 wheels.		
3.2.1.8	It must include a free-to-use block programming environment (without licensing costs).		
3.21.9	It must present software compatibility with the specifications of the devices entregados por Ceibal (See: https://www.ceibal.edu.uy/es/dispositivos/clamshell)		
3.2.1.10	It must include a communication between the hardware and the software by cable.		
3.2.1.11	It must allow movement actions to be programmed based on the interpretation of data made by the sensors.		
3.2.1.12	It must have an integrated and rechargeable power source.		
3.2.1.13	It must have a power source with a minimum autonomy of 1 hour of continuous use.		
3.2.1.14	The control module must allow the simultaneous connection of at least the following: 3 motors plus any 3 sensors.		
3.2.1.15	The kit must be self-contained: no extra component will be required for its assembly, operation, energy recharge, or communication with the device where the programming is carried out.		
3.2.1.16	All items listed must be in a container box.		

8.2.2 Tabla de cumplimiento criterios de evaluación

Table of compliance: evaluation criteria of each kit			
# Specif.	Description	Compliance (Yes/No/Partial)	Observations
3.2.2.1	Wireless communication between hardware and software.		
3.2.2.2	Possibility of seeing the programming carried out in blocks as well as code in languages such as python, Java, JavaScript or others.		
3.2.2.3	Software with interface in Spanish.		
3.2.2.4	Screen that allows to visualize the actions carried out.		
3.2.2.5	Power source with autonomy greater than 1 hour of continuous use.		
3.2.2.6	Gyroscope (rotation sensor).		
3.2.2.7	Accelerometer		
3.2.2.8	Other actuators such as lights, sound, etc.		
3.2.2.9	Software with the possibility of exporting sensor data and programming variables.		
3.2.2.10	Kit with educational support material for the teacher (guides, videos, tutorials, among others).		

8.2.3 Price table

Price table Item B: Assembly Robotics Kits				
Model 1				
CIF MVD offer ranges	From 0 to 300		Proposed delivery time	
	More than 301			
Model 2				
CIF MVD offer ranges	From 0 to 300		Proposed delivery time	
	More than 301			
Model 3				
CIF MVD offer ranges	From 0 to 300		Proposed delivery time	
	More than 301			
Model n				
Offer ranges	From 0 to 300		Proposed delivery time	
	More than 301			