

Expectation to UNISEC-Global

1st Virtual UNISEC-Global Meeting, September 12, 2020.

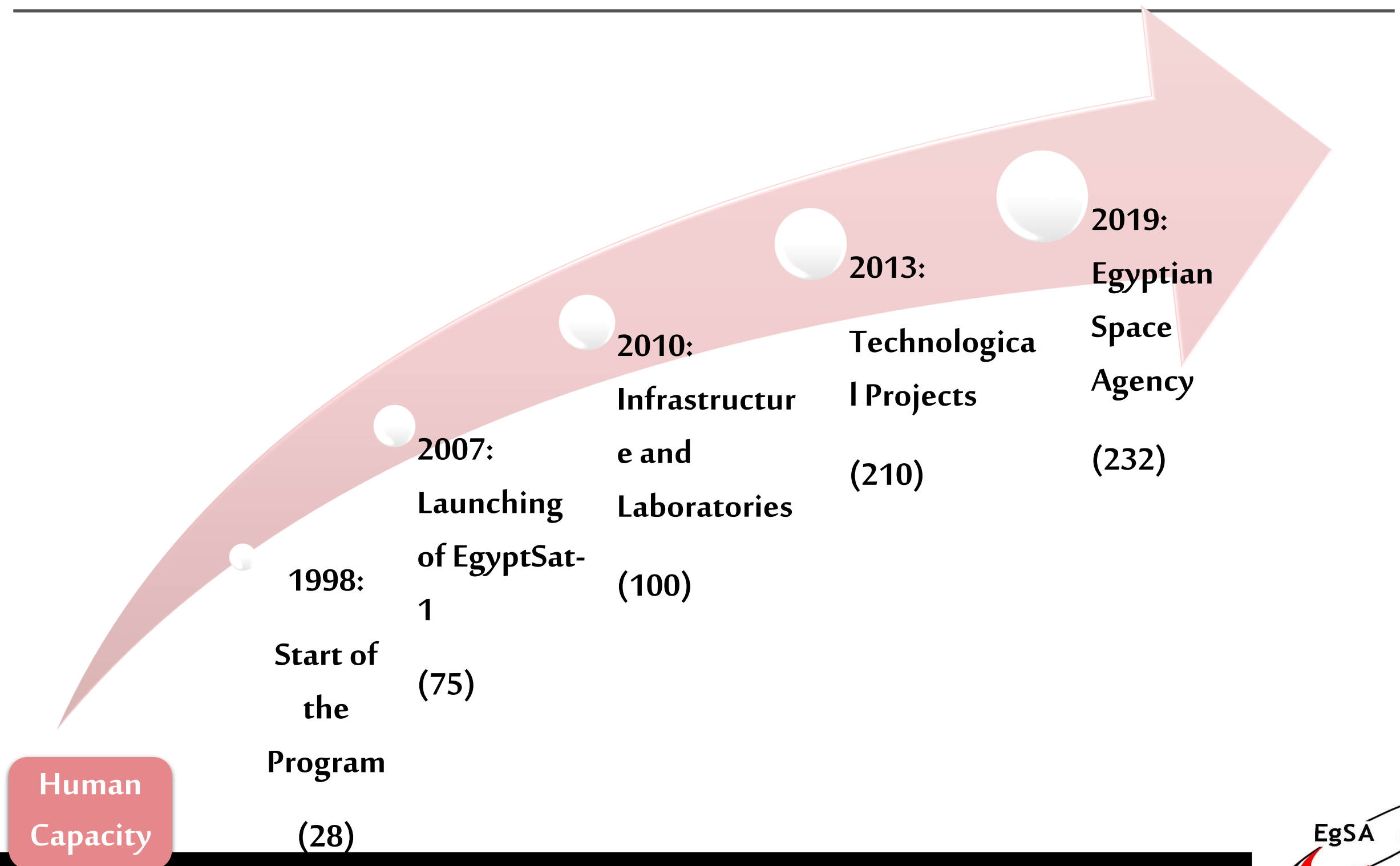
Mohamed Khalil Iraqi, Ph.D.

Deputy CEO

Outline

- Introduction to EgSA
- EgSA Organizational Structure
- National Space Program
- EgSA Capacity Building Projects
- EgSA & UNISEC-Global
- Expectations to UNISEC-Global

About EgSA: Historical Background



EgyptSat-1 (2001-2007)

EM Testing & Camera Simulator



Completeness of EM Testing



FAT EgyptSat-1



Final Preparation and Installation of EgyptSat-1 to the Launcher



Egyptian Space program – Laboratories and Special Centers

2004



Payload

2008



EM

2011



Satellite Functional Testing

2013



Payload System Design

2014



Concurrent Design Center
(CDC)

2014



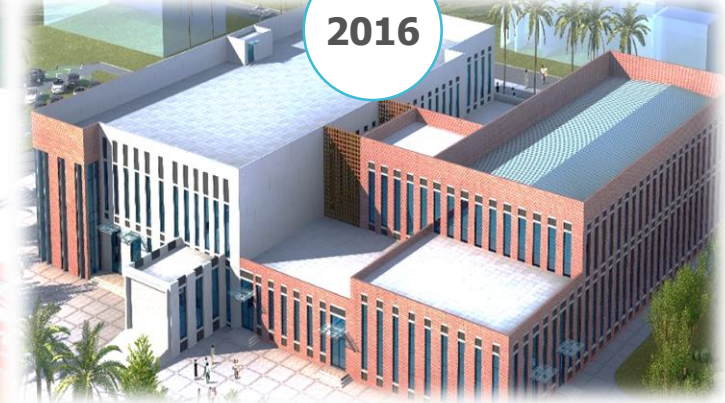
Payload Design and Testing

2015



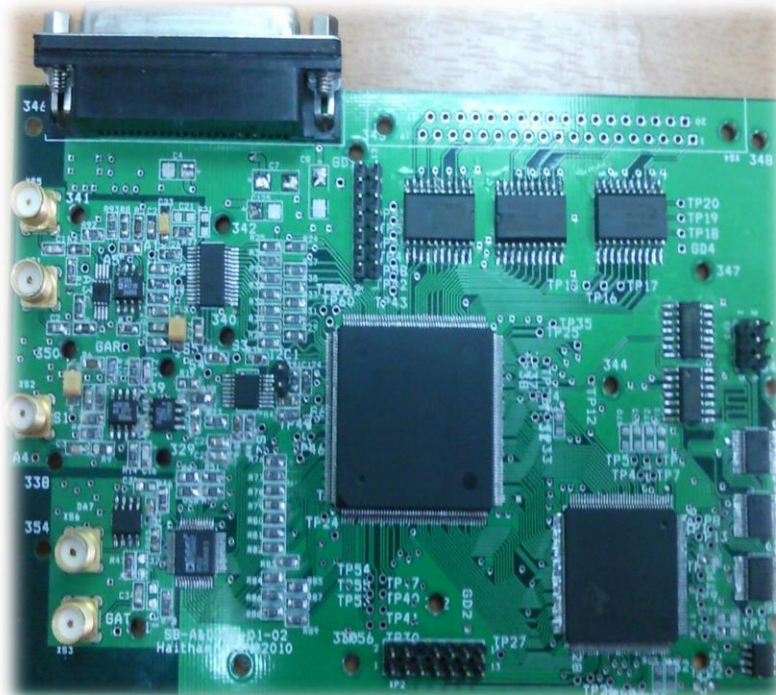
Satellite Functional Testing

2016



AIT

Egyptian Space Program – Locally Developed Projects



Satellite Embedded
Communication System



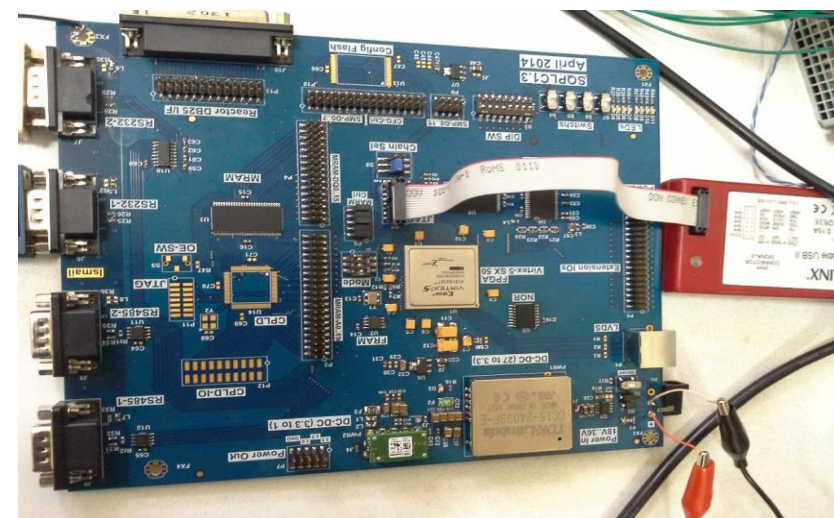
Satellite Signal Processing System



Satellite OBC and Telemetry
Systems



CTE System



Functional Test System

Strategic Goals of Egyptian Space Agency

**Transfer and Localization
of Space Technologies**

**Research and
Developments of Space
Sciences**

**Sustainable Development and
National Security**

**Local Development of
Space Systems**

**Launching Capabilities
from Egyptian Territory**

Organizational Structure

Egyptian Space Agency

Agency Supreme council Chaired by
The President of Arab Republic of Egypt

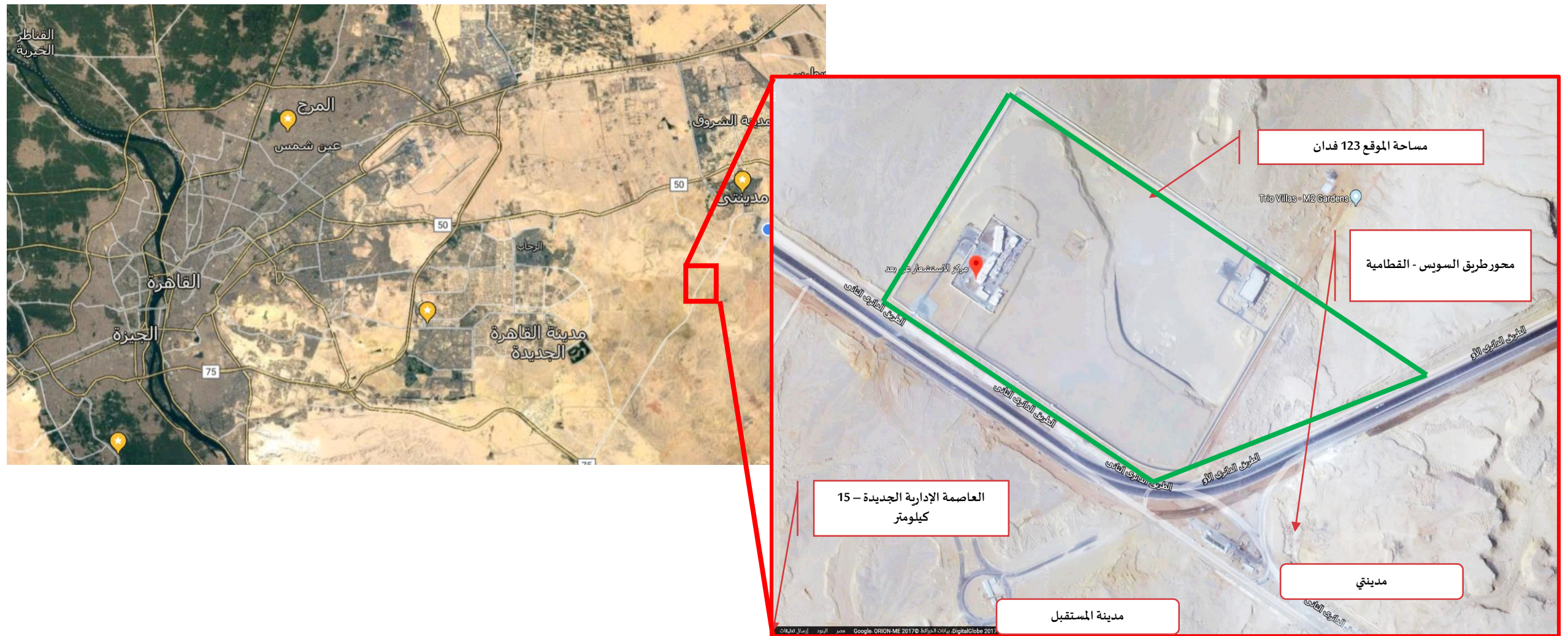


Board of Directors Chaired by
The Prime Minister



COE and Executive Administration

Space City - Location



Space City – General Layout



- | | | |
|---|------------------------------------|-----------------------------|
| 1 Egyptian Space Agency | 9 Training and Museum Building | 16 Recreational Building |
| 2 African Space Agency | 10 Library and Conference Hall | 17 Security |
| 3 Egyptian Space Academy | 11 Planetarium | 18 Transformer |
| 4 Space System Development Center | 12 Dormitory | 19 Underground Water Tank |
| 5 Administrative and Free Zone Building | 13 Administrative Building for AIT | 20 Electrical Power Station |
| 6 Satellite Receiving and Control Center | 14 Hotel | 21 Generators |
| 7 Assembly, Integration, and Testing Facility (EO Satellite) | 15 Mosque | 22 Parking Lot |
| 8 Assembly, Integration, and Testing Facility (COM Satellite) | | 23 Service Building |

Supreme Council

1. Egyptian President (or Prime Minister)
2. Minister of Defense
3. Minister of Interior
4. Minister of Communication and Information Technology
5. Minister of Finance
6. Minister of Higher Education
7. Minister of Military Production
8. Head of General Intelligence Directorate
9. Head of Administrative Control Authority
10. COE of Egyptian Space Agency
11. Head of AOI

Board of Directors

1. Prime Minister
2. Minister of Higher Education
3. Minister of Communication and Information Technology
4. COE of Egyptian Space Agency
5. Chairman of Scientific Research Academy
6. Headquarters of the State Council
7. Ministry of Defence
8. Ministry of Interior
9. Ministry of Finance
10. Ministry of Military Production
11. Egyptian Presidency
12. General Intelligence Directorate
13. Administrative Control Authority
14. AOI
15. Three Expertise

National Space Program

Space Program Main Axes

1. Human Resource and Scientific
2. Infrastructure and Industrial Development
3. Space System
4. Outer Space Exploration
5. International Relation and Collaboration
6. Legal and Space Standards

Human Resource and Scientific Development Axis

Space Science and Technology Awareness Programs

University Satellite Programs

Space Research Programs

Continuous Training Programs (for EgSA)

Summary of Capacity Building Projects

Category	No.	Project Title
EgSA Capacity Building Projects	1	Disassembly and Assembly of Egypt SAT-1 Full Scale Mockup
	2	Egyptian University Satellite, EUS-1
	3	Educational Satellite Kit (ESK)
	4	Educational Satellite Program Project 2020, EUS-2
	5	EgSA-CanSat: Educational Satellite Kit for Pre-University Students

Capacity Building Projects

1

Disassembly and Assembly of Egypt SAT-1 Full Scale Mockup

Project Start Date	31 / 5 / 2020	Planned End Date	1 / 9 / 2020
Partner(s):	Not exist		
Project Manager	Eng. Sayed Lasheen		
Abstractive summary	<p>The project aims to improve engineers experiences in satellite Assembly and Integration (AI) field and establish quality control and assurance system through disassembly and assembly process of Egypt SAT_1 Full Scale Mockup.</p> <p>The needs : MGSE , tools , auxiliaries and stationary. Important deliverables : satellite components , disassembly and assembly procedures.</p>		

1

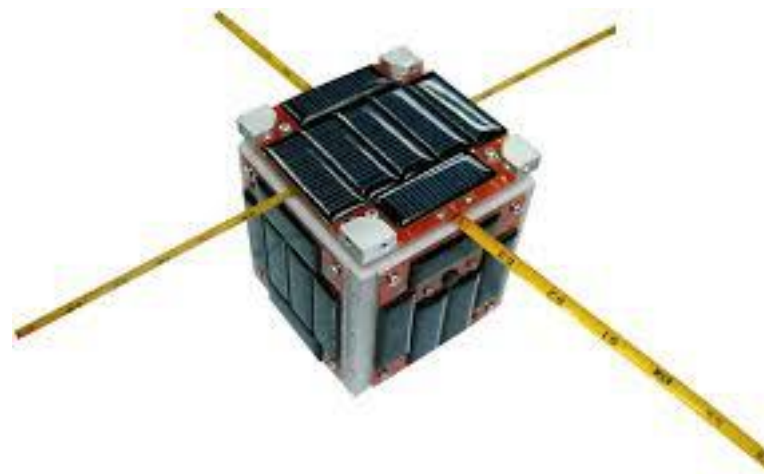
Disassembly and Assembly of Egypt SAT-1 Full Scale Mockup

2

Egyptian University Satellite, EUS-1

Project Start Date	1/1/2018	Planned End Date	15/4/2021
Partner(s):	---		
Project Manager	Eng. Hany Bekhit		
Abstractive summary	This project aims at developing the first Egyptian satellite that is locally developed by Egyptian universities' students guided by Egyptian space experts of EgSA. The developed satellite will be a pico-satellite in the form of 1U CubeSatThe current statue: performing satellite integration process, testing FCC software integration, adapting existing GCS for operation, searching for launching opportunity.		

Egyptian University Satellite Program 2016



Helwan University	Zewail University	Ain-Shams Univ.	Alexandria Univ.	Cairo University
Future University	MIU	Monufia Univ.	Banha Univ.	Azhar University
Shobra Faculty of Eng.	Akhbar Elyoum Academy	MSA	MUST	
Arab Academy for Science Technology & Maritime Transport		Abor Higher Tech. Institute	Modern Academy	

3 Educational Satellite Kit (ESK)

Project Start Date	15 / 09 / 2019	Planned End Date	15 / 02 / 2021
Partner(s):	None		
Project Manager	Dr. Mohamed Ibrahim		
Abstractive summary	<p>The Educational Satellite Kit (ESK) will design to provide students a laboratory for understanding and exploring the concepts of the satellite subsystem (functional level).</p> <p>The hardware and exercises are meant to provide students of engineering hands on experience in test and operation.</p>		

4

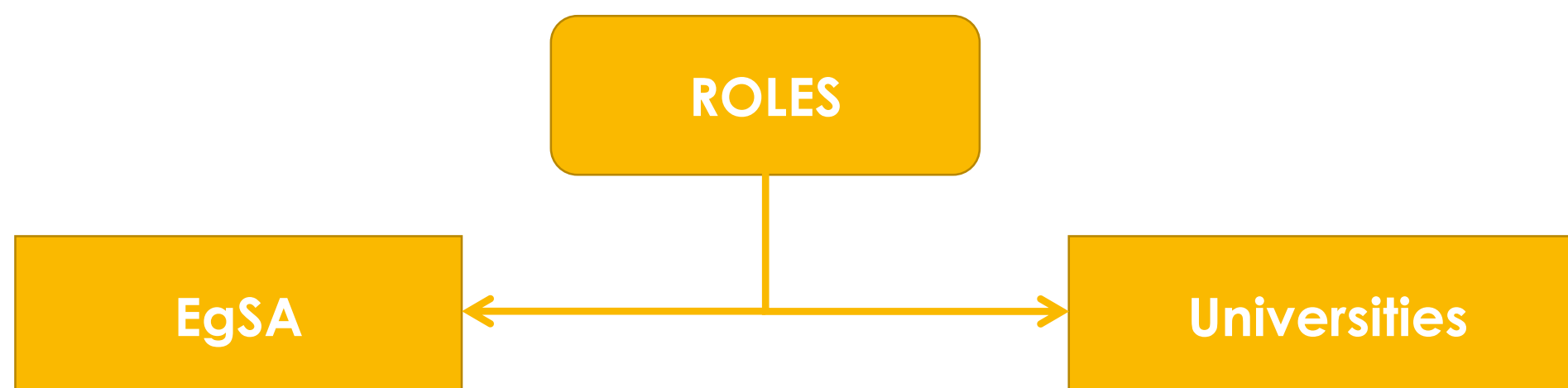
Educational Satellite Program Project 2020, EUS-2

Project Start Date	1/7/2019	Planned End Date	31/7/2020
Partner(s):	N/A		
Project Manager	Eng. Wassim Eissa		
Abstractive summary	<p>The main objective of this project is to train and qualify the students of Egyptian universities to be able to work in the space industry field. The project includes training (theoretical and practical), as well as development of real satellite modules. Current status: developed all satellite modules, manufactured and purchased needed components, testing developed SW modules (embedded, desktop), writing project books.</p>		

4 | Educational Satellite Program Project 2020, EUS-2

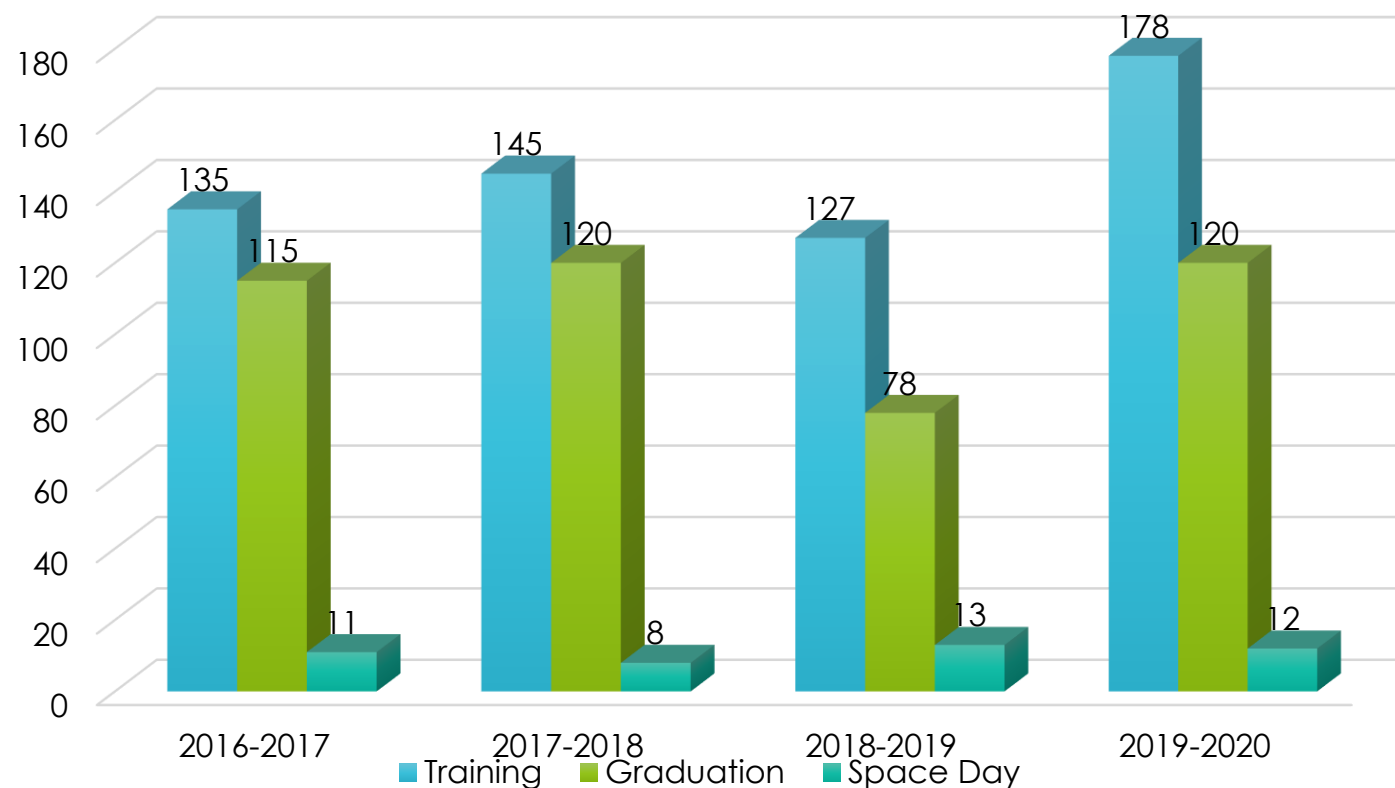


4 | Educational Satellite Program Project 2020, EUS-2

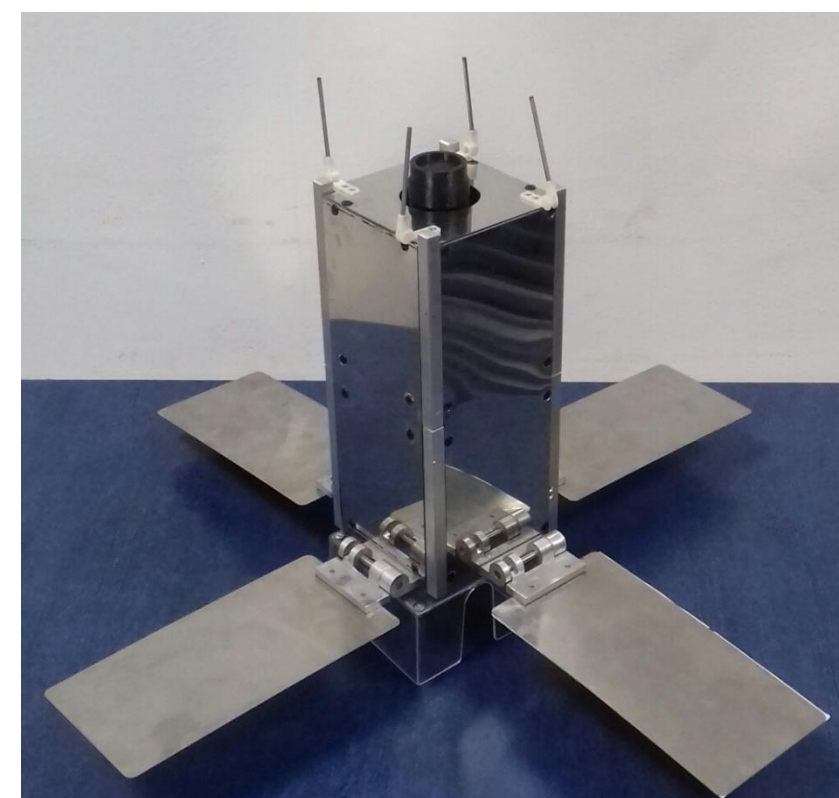
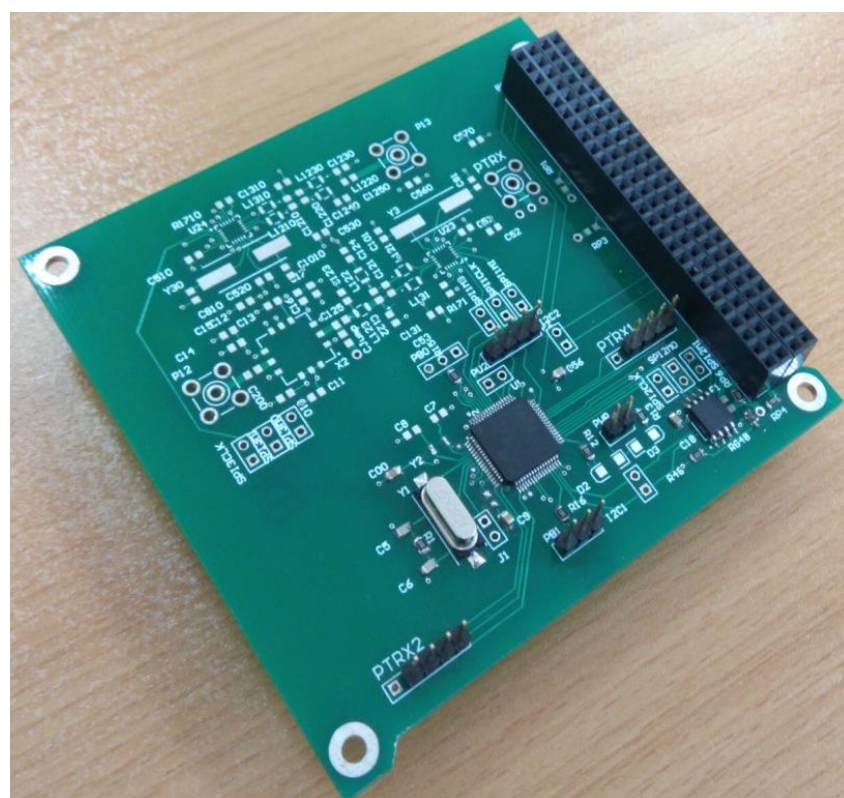


- Technical support during the project
- Financial support
- Reserved Working area (room/lab)
- Project supervisor (PhD) + assistant (M.Sc./B.Sc.)
- Project Group 4th year students

4 Educational Satellite Program Project 2020, EUS-2



4 Educational Satellite Program Project 2020, EUS-2



EgSA-CanSat: Educational Satellite Kit for Pre-University Students

Project Start Date	1/7/2020	Planned End Date	1/1/2021
Partner(s):	TBD		
Project Manager	Dr. Mohamed Iraqi		
Abstractive summary	<p>The CanSat provides an affordable way to acquire the students with the basic knowledge to many challenges in building a satellite. Students will be able to design and build a small electronic payload that can fit inside a coke can. The CanSat is launched and ejected from a rocket or a balloon. Using a parachute, the CanSat slowly descends back to earth performing its mission while transmitting telemetry. Post launch and recovery data acquisition will allow the students to analyze the cause of success and/or failure.</p>		

EgSA & UNISEC-Global

On August 11, 2020, MOU was signed between EGSA and UNISEC-Global



Expectations to UNISEC-Global

- Leading role in Capacity Building for Space Science and Technology.
- Development Hub for Micro/Nano Satellite for both Academia and Industry.
- Go Online due to COVID-19
- Community Engagement