



Engineering Day Afterwork



Bienvenidos!!







IEE



IEEE

young
professionals



Agradecimientos



Telecomunicación
Campus Sur
UPM



POLITÉCNICA



3 ideas para hoy

- Ingeniería
- Colaboración
- Diversión

Arturo Medina

Young Professionals Spain



IEEE YP Spain Affinity Group

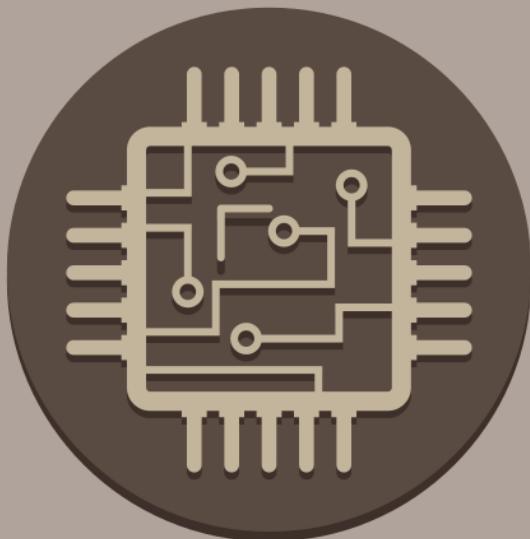
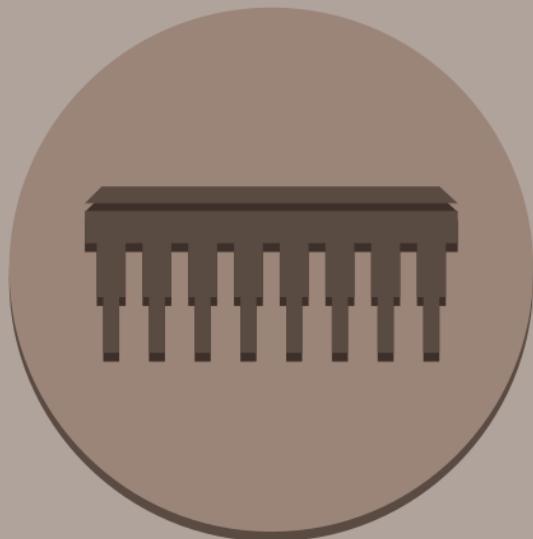
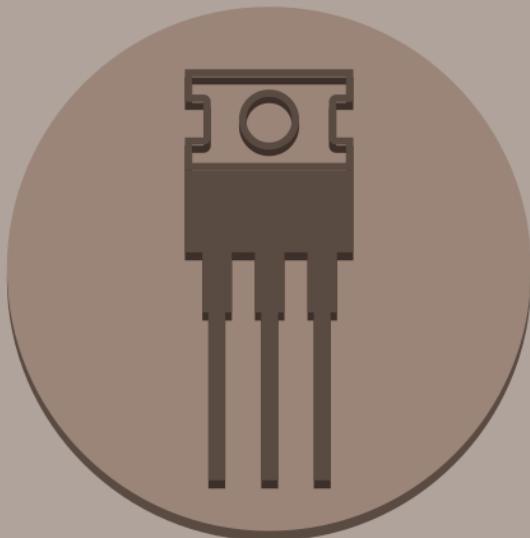
Arturo Medina

arturomedina@ieee.org













Solo personal
Staff only

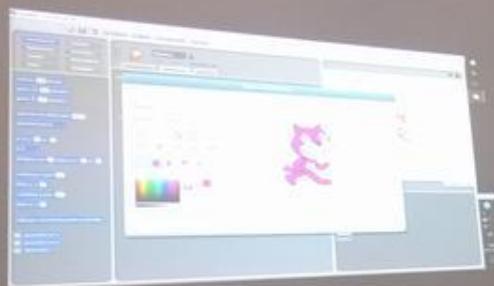




FUNDACAO
ANTONIO CIPERTE
MIRANDA









The Team

Manuel Ballesteros

Chair



m.ballesteros.carballo@ieee.org

Rubén Martinez

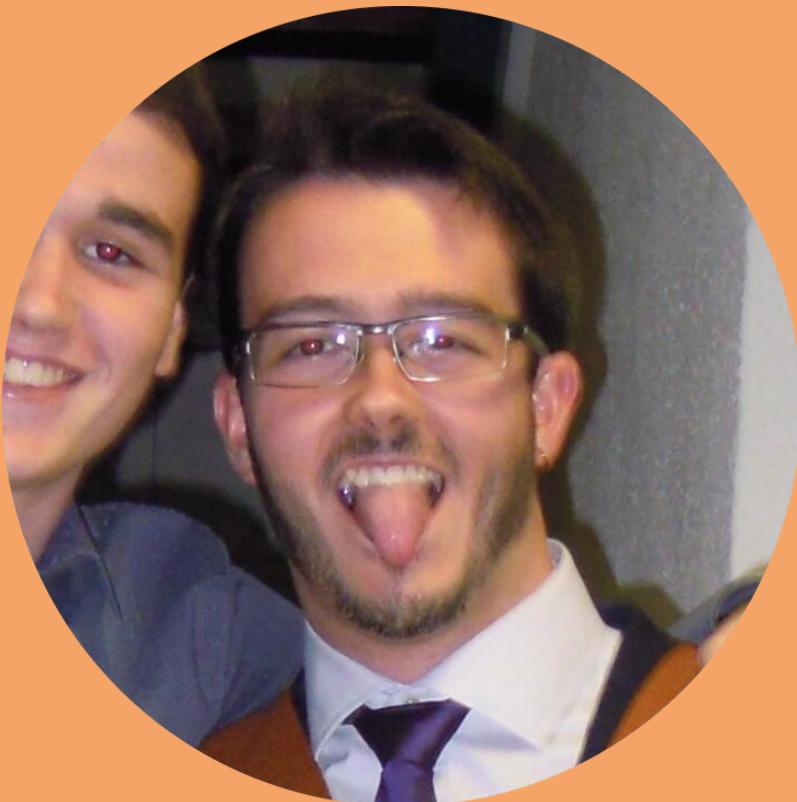
Vice-Chair



ruben.martinez@upct.es

Jesus Rodriguez Venzal

Treasurer



jrvenzal@ieee.org

Arturo Medina Merino

Secretary



arturomedina@ieee.org

Emilio Gomez Mansilla

Action for Industry Program



Under the radar

Juan Emilio Zurita

uVolunteering Program



juanezm@ieee.org

Brayan Stiven Zapata

SWYP 2019 Advisor



m.ballesteros.carballo@ieee.org

Miguel Merelo

Community Manager



merelo.miguel@ieee.org

Andrés Montes

Student Branches



andres.montes.es@ieee.org

Ramón Medrán Medrán

Documentation



ramon.medran@ieee.org

THANK YOU FOR YOUR ATTENTION



@IEEEYP_Spain



facebook.com/ypspain



Felipe Baena

The Radio Amateur
Satellite Corporation
(AMSAT-EA)

Satélites y radio amateur



EA7KAN
#3

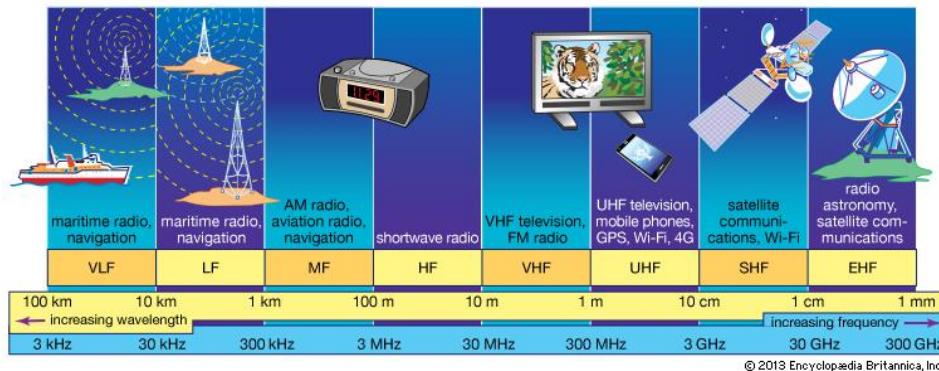


AMSAT

- Asociación cultural sin ánimo de lucro
- Operadores de satélites por todo el mundo
- Colaboramos con URE
- Actualmente desarrollamos el PocketQube EASAT-2



Radioafición



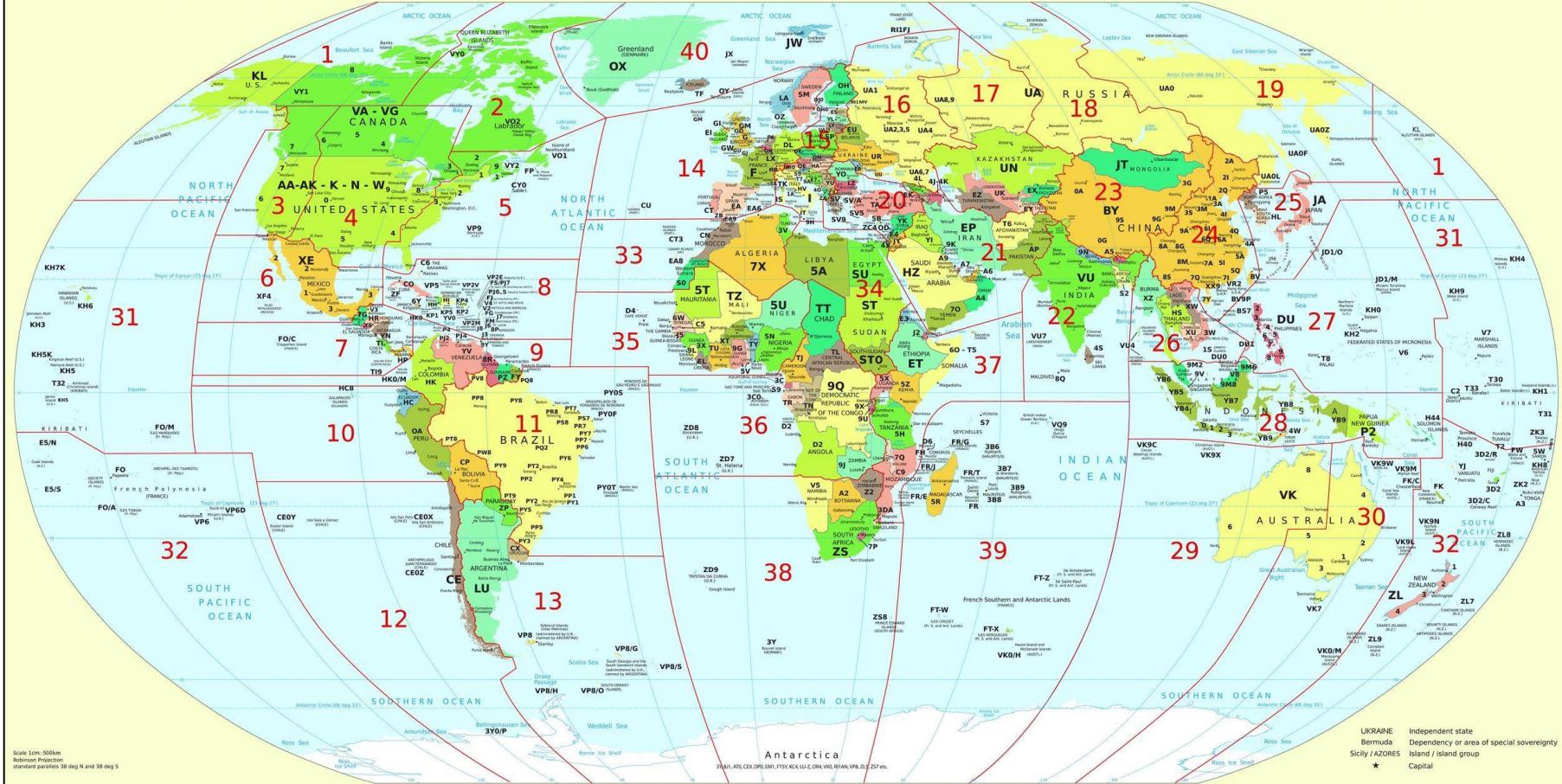
THE CHALLENGE



Sierra Nevada (Granada) 2896 msnm
Universidad de Málaga

>120 km

AMATEUR RADIO WORLD MAP AND DXCC COUNTRY LIST



¿Cómo surge AMSAT?

Space Race

4/10/1957 Sputnik-I (URSS)
31/1/1958 Explorer-I (USA)

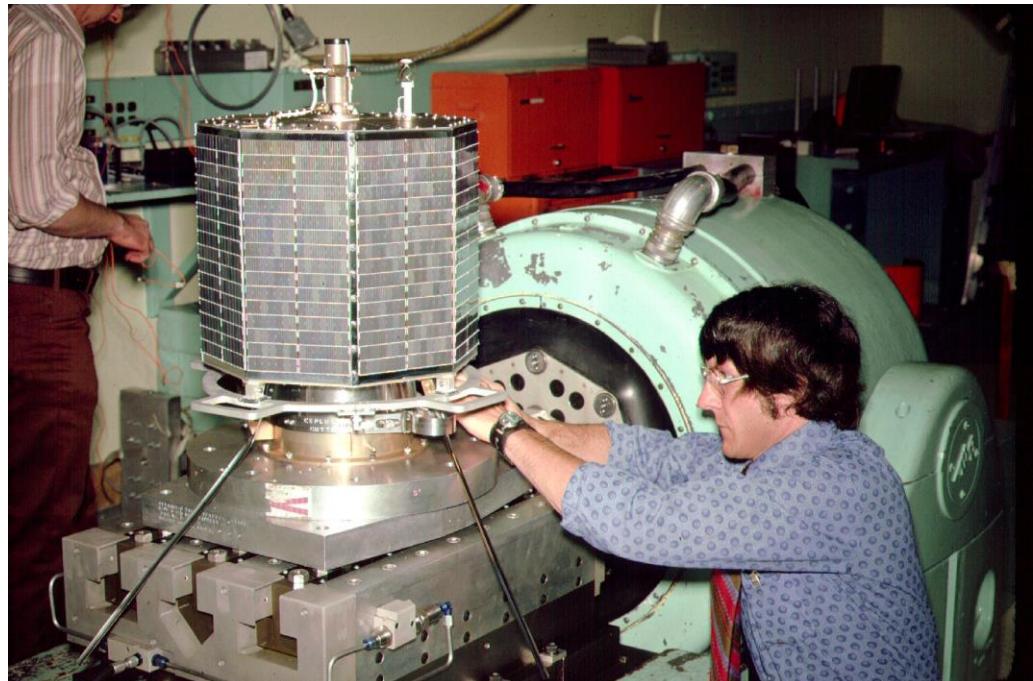
...

Amsat

12/12/1961 OSCAR-I (USA)
22 días operativo

...

15/11/1974 OSCAR-7



AMSAT OSCAR-7

Frecuencias del transpondedor:

Modo A:

- Subida en VHF (145.850 Mhz - 145.950 Mhz)
- Bajada en HF (29.400 Mhz - 29.500 Mhz).

Modo B:

- Subida en UHF (432.120 Mhz - 432.180 Mhz)
- Bajada en VHF (145.920 Mhz - 145.980 Mhz - invertido)

Telemetría / baliza:

Modo A:

29.520 Mhz (CW)

Modo B:

145.9775 Mhz (CW) ó 435.100 Mhz (CW)



SATELITES ACTIVOS (fonía)

Satélites de canal FM

SO-50 (SaudiSat 1C - Saudi OSCAR 50)

AO-85 (FOX 1A - AMSAT OSCAR 85)

AO-91 RadFxSat (FOX 1B - AMSAT OSCAR 91)

AO-92 (FOX 1D - AMSAT OSCAR 92)

LilacSat 2 (CAS-3H)

EO-80 (QB50p2)

LilacSat-1 *(bajada no FM)

IO-86 (Lapan A2 - Orari) (Ecuatorial)

PicSat



Satélites con transpondedor lineal

AO-7 (AMSAT OSCAR 7)

FO-29 (JAS-2 - Fuji OSCAR 29)

AO-73 (FUNcube-1)

Constelación Xi Wang-2 Hope (CAS-3)

XW-2A Hope 2A (CAS-3A)

XW-2B Hope 2B (CAS-3B)

...

XW-2F Hope 2F (CAS-3F)

EO-79 (QB50p1 / FUNCube 3)

UKube-1 (FUNCube 2)

LO-87 (LUSEX OSCAR 87 - Módulo en satélite ÑuSat-1)

EO-88 (NAYIF-1 - Emirates OSCAR 88)

CAS-4A y CAS-4B (Módulos en sat Zhuhai-1 y Zhuhai-2)

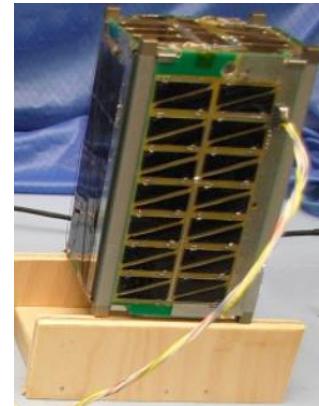
RS-15 (Radio Sputnik - Radio ROSTO 15) *Solo baliza



SATELITES ACTIVOS (dig. y telemetría)

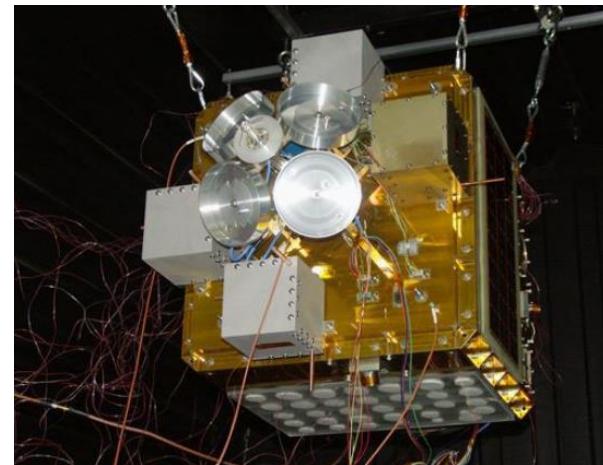
Satélites de modos digitales

NO-44 (PCSat - Navy OSCAR 44)
NO-84 (PSat New OSCAR 84)
FalconSat-3
D-Star One (Phoenix)



Satélites de telemetría

SPROUT
ZACube-1 (TshepisoSAT)
PolyITAN-1
STARS-1
EO-80 (QB50p2)
EcAMSat
XI-IV
UO-11 (UoSAT-2)



FalconSat-3



Estación Espacial Internacional (ISS)

Módulo ARISS

Frecuencias **contactos voz astronautas – colegios**

- Subida en VHF (145.200 Mhz) y bajada en VHF (145.800 Mhz) - ITU Region 1 (Europe, Russia and Africa)
- Subida en VHF (145.490 Mhz) y bajada en VHF (145.800 Mhz) - ITU Regions 2 and 3 (The Americas, and the Pacific and Southern Asia)



Satélites Meteorológicos

NOAA-15

NOAA-18

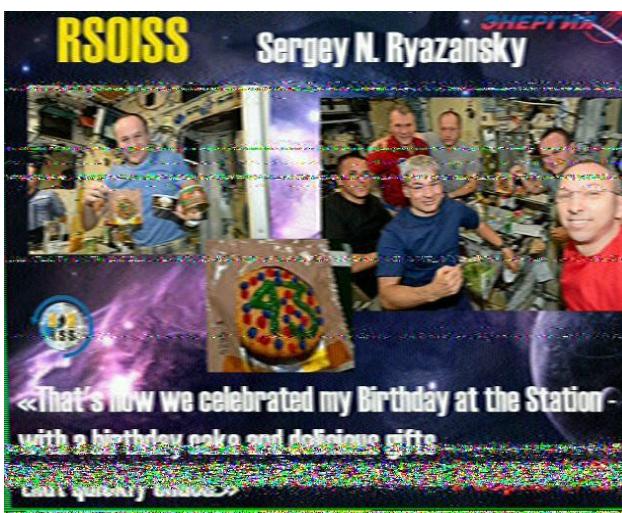
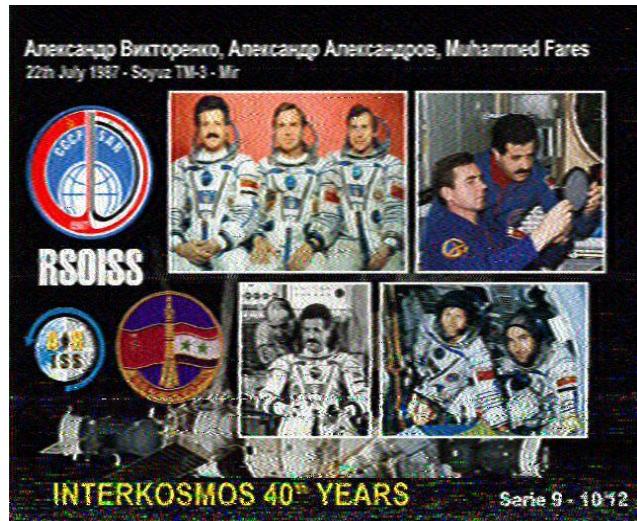
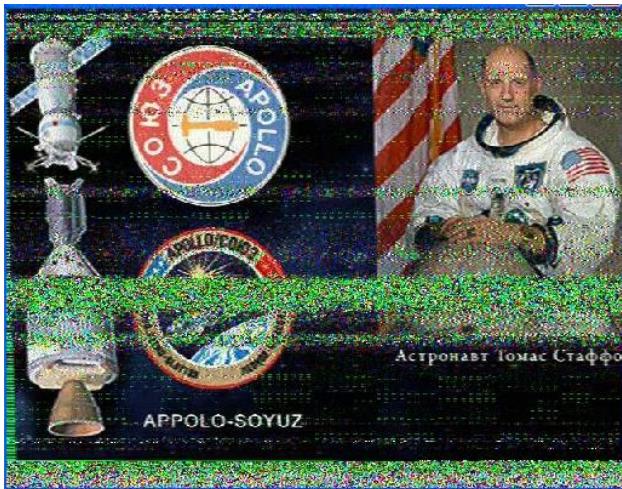
NOAA-19

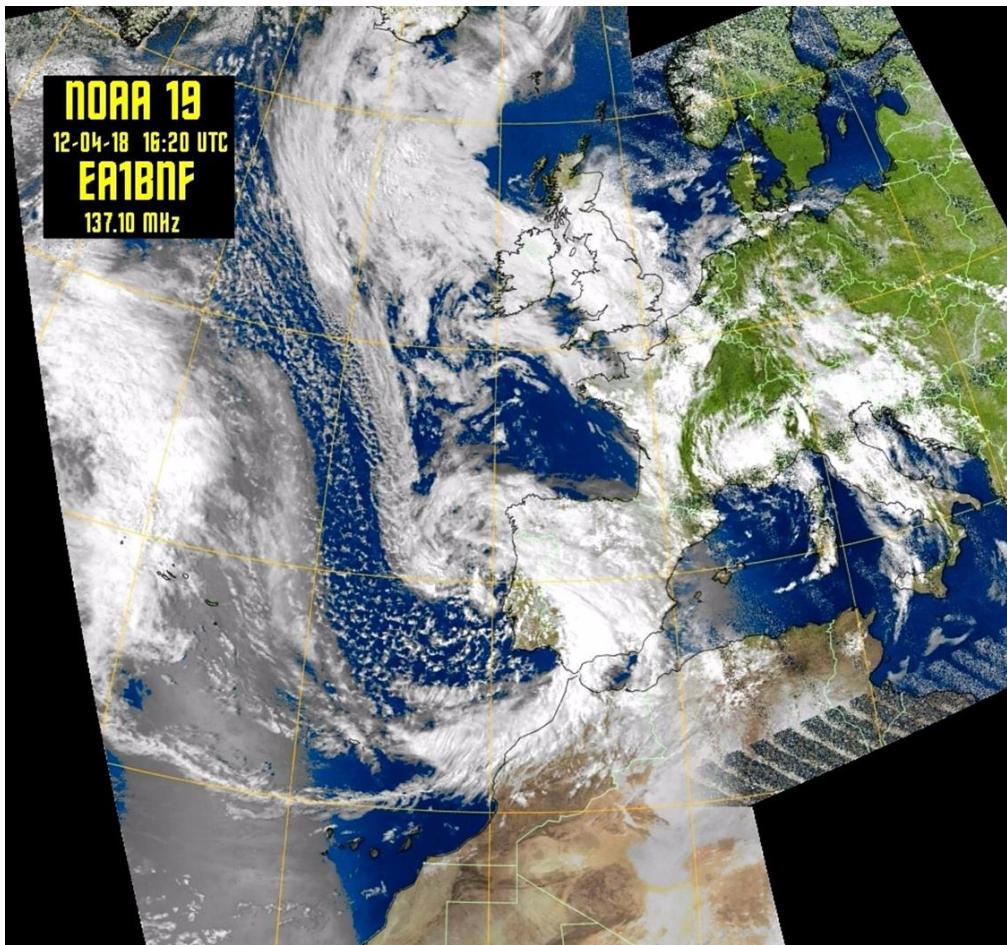
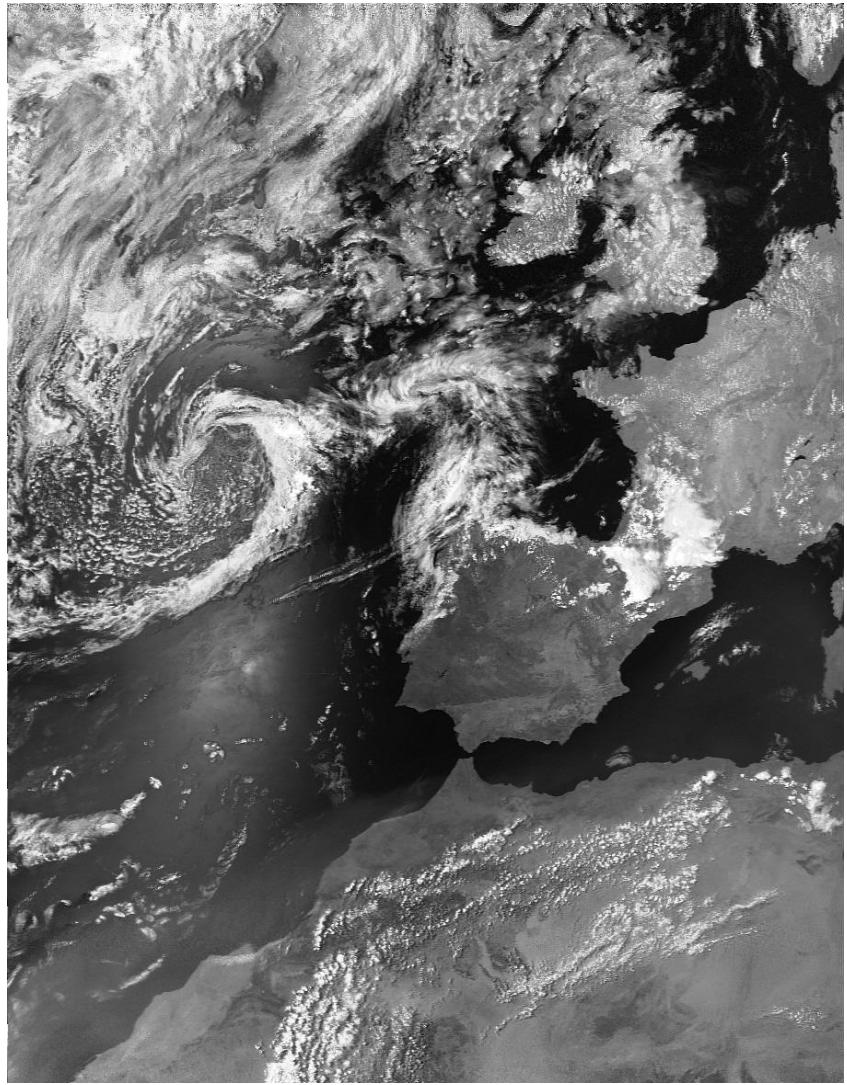


RS0ISS

серия 1

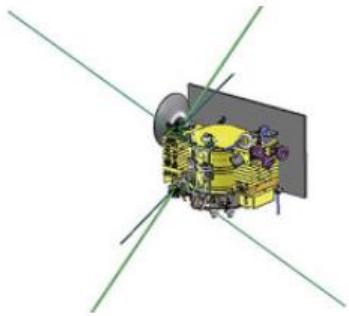
1/12







Orbitadores Lunares



Longjiang-1 (DSLWP A1)

Estado de operatividad: DESCONOCIDO

Fallido 21 de mayo 2018 pero recibidos reportes posteriores

Órbita:

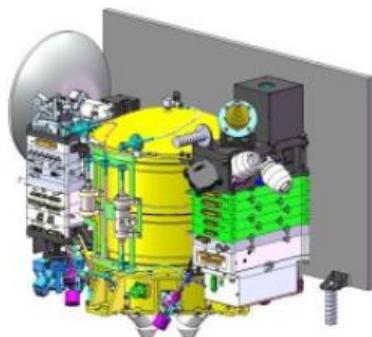
Lanzamiento: 20 de mayo de 2018

Frecuencia de recepción:

435.425 MHz 500 baudios GMSK con turbo code 1/4

436.425 MHz 250 baudios GMSK con turbo code 1/2 turbo y precoder

Transmisiones cada 5 minutos y duración 16 segundos



Longjiang-2 (DSLWP A2)

Estado de operatividad: OPERATIVO

Órbita: 200 km × 9000 km en torno a la luna (+ aprox. 384.000 km desde la Tierra)

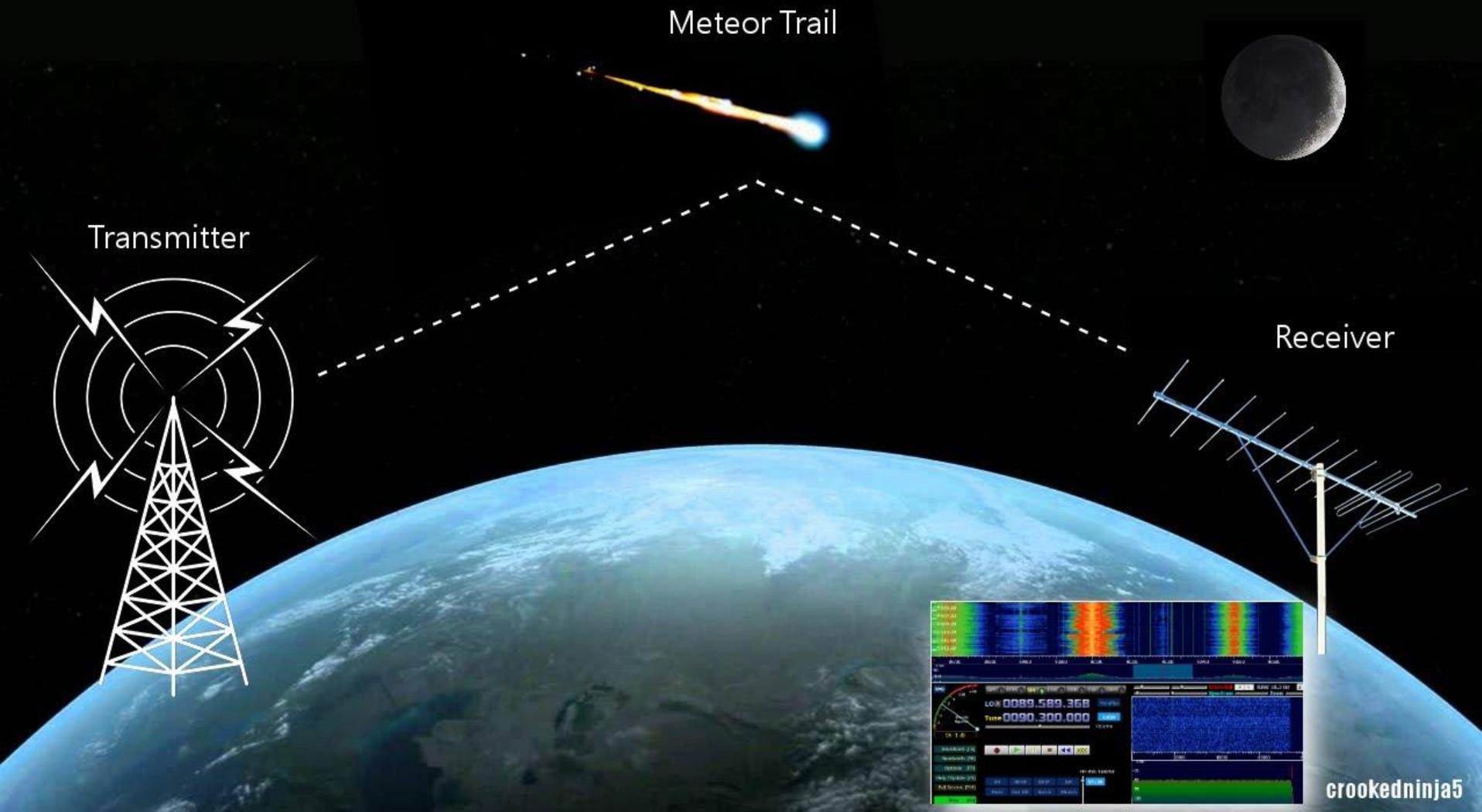
Lanzamiento: 20 de mayo de 2018

Frecuencia de recepción:

435.400 MHz 500 baudios GMSK con turbo code 1/4

436.400 MHz 250 baudios GMSK con turbo code 1/2 turbo y precoder

Transmisiones cada 5 minutos y duración 16 segundos



crookedninja5

Operación de satélites

¿Cómo trabajamos?



Estación terrena



Antenas de seguimiento

1. HW (equipos)

RTL-SDR <10 €



E500 USB R820T DVB-T RTL-SDR REALTEK RTL2832U Digital HDTV Negro - ver título original

★★★★★ 1 valoración de producto | Escribir una opinión

Estado: Nuevo

Cantidad: 2 disponible(s)

GBP 5,00
Aproximadamente 5,64 EUR

¡Compralo ya!

Añadir a la cesta

⊕ Añadir a lista de seguimiento

Plazo de devolución: 30 día(s)

Envío: GBP 1,29 (aprox. 1,45 EUR) Económico | Ver detalles
Consulta los detalles acerca de los envíos internacionales aquí. ⓘ
Ubicación del artículo: China, China
Realiza envíos a: Todo el mundo Ver exclusiones

Entrega: Prevista entre el mié. 24 oct. y el jue. 6 dic.

WALKI BAOFENG <30 €



Baofeng UV-5R 136-174/400-520MHz Dual-Band DTMF
Spain stock/100% Brand New Baofeng/Correos shipment

1 visita por hora ★★★★★ 6 valoraciones de producto

Estado: Nuevo

Cantidad: 4 disponible(s)
112 vendidos

22,89 EUR

¡Compralo ya!

Añadir a la cesta

Hacer oferta

⊕ Añadir a lista de seguimiento

112 vendidos

Más de 96% vendidos

Envío: 2,99 EUR Económico | Ver detalles

HackRF One
...hasta 6 GHz

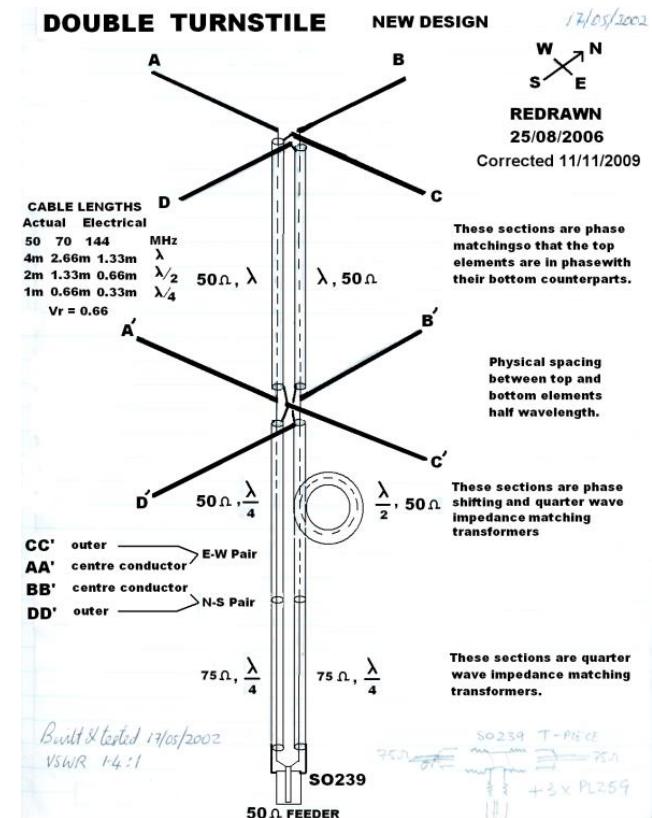
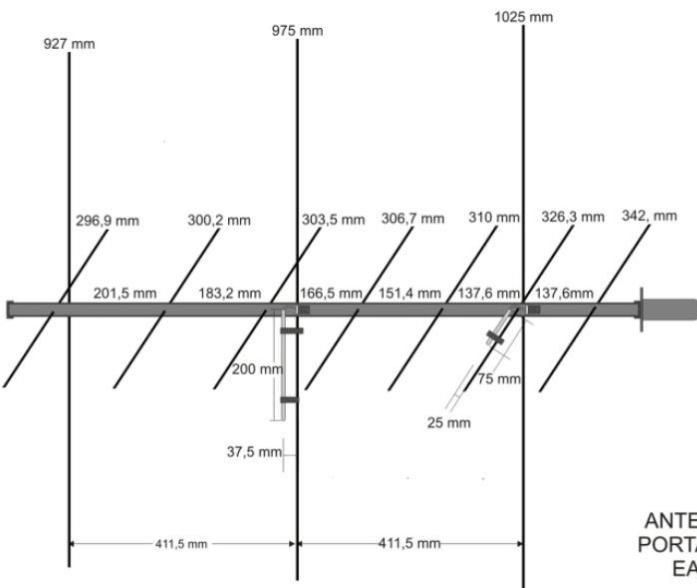


TYT 9800
...full-duplex



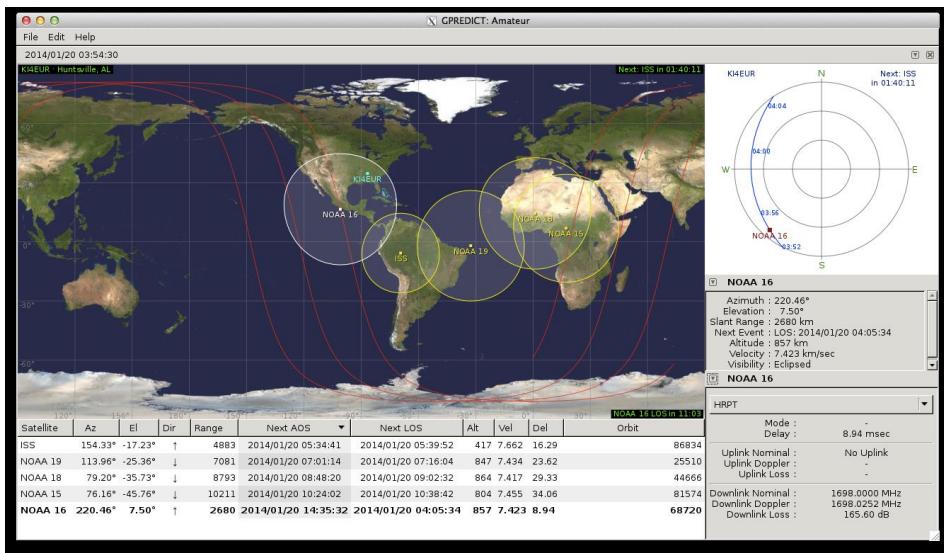
1. HW (antenas)

ARROW V-UHF



2. SW (predicción orbital)

GPredict

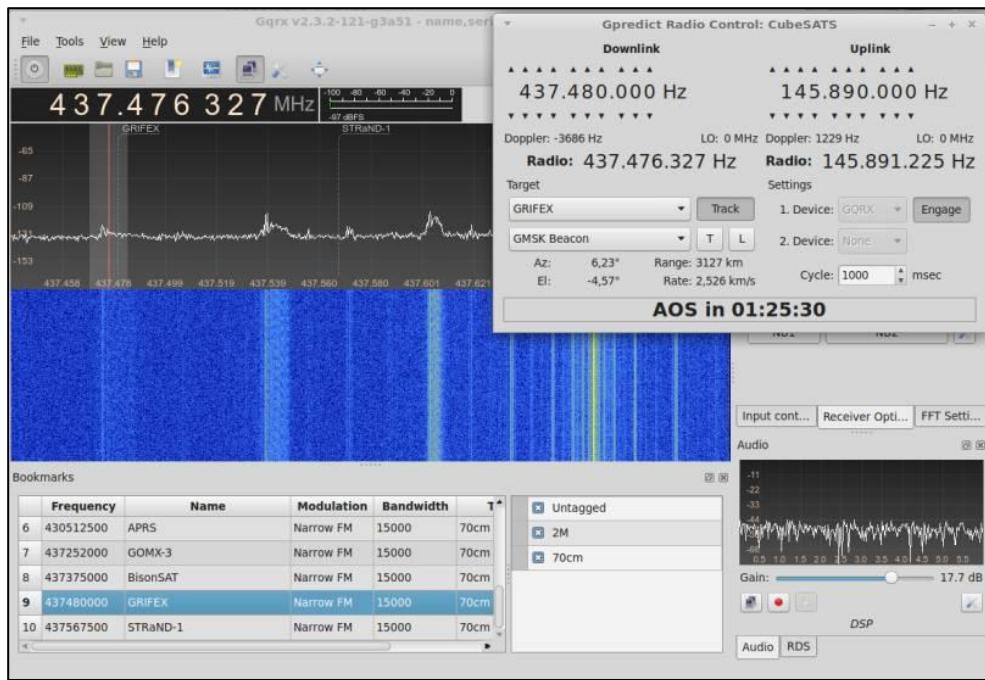


ISS Detector

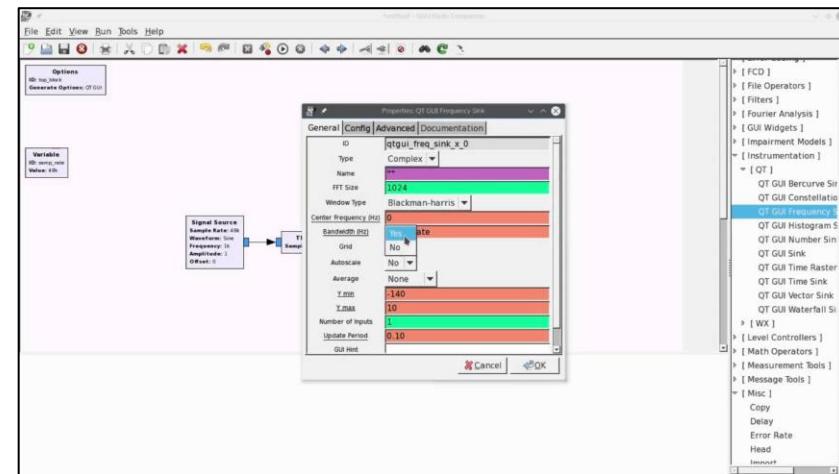


2. SW (control SDR)

GQRX



GNU Radio

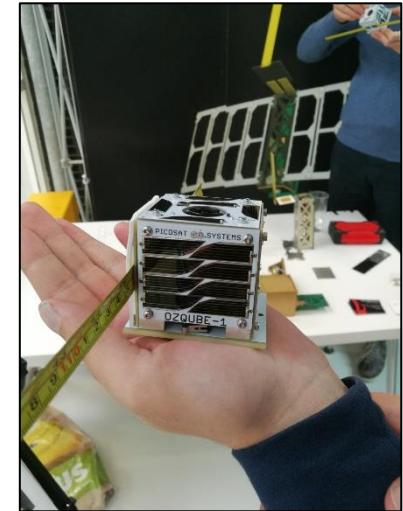


SW + HW para operar* satélites < 50 €

*portable

Desarrollo de satélites - EASAT2

- PocketQube 2P, estructura de 5x5x10cm
- Órbita LEO
- Envío de telecomandos CW
- Transpondedor lineal FM (VHF/UHF) (alumnos ICAI)
- Stirling Engine Experiment on board (alumnos Universidad Europea)



Necesitamos...

- Programación en C
- Conocimientos de Matemáticas (Algoritmos)
- Electrónica (KiCAD para PCBs, pruebas)





LA NAVE

Calle Cifuentes, 5 (Villaverde)

amsat-ea.org

foro.amsat-ea.org

contacto@amsat-ea.org

[@amsatspain](https://twitter.com/amsatspain)



73!

Pedro Plaza

Plaza robótica



Pedro Plaza Merino

Carrera profesional:

Ingeniero de proyecto de I+D / Siemens Rail Automation

Diseñador de contenidos educativos / Plaza Robótica

Investigador / UNED

Formación:

Ingeniero Técnico Industrial: Electrónica Industrial / UC3M

**Ingeniero Industrial: Electrónica y Automática, y
Electricidad / UC3M**

**Máster en investigación en Ingeniería Eléctrica, Electrónica
y Control Industrial / UNED**

I. Formación

II. Carrera profesional

III. Proyectos actuales



POLITÉCNICA



uc3m | Universidad Carlos III de Madrid



UNED

I. Formación

II. Carrera profesional

III. Proyectos actuales

uc3m

Universidad **Carlos III** de Madrid

Becario de aulas informáticas / UC3M

Becario de investigación/ UC3M



Invensys
DIMETRONIC
signals

invensys
Rail DIMETRONIC

SIEMENS

PLAZA
ROBOTICA

Ingeniero de proyecto de I+D

Diseñador de contenidos educativos

I. Formación

II. Carrera profesional

III. Proyectos actuales

SIEMENS

UNED



- Seguir desarrollando mi carrera profesional como Ingeniero de Proyecto de I+D
- Finalizar mi tesis doctoral
- Continuar desarrollando mi perfil investigador
- Proseguir con las actividades relacionadas con la robótica educativa

José M^a Corsino

Delonia Software



**La Ingeniería Software ...
¿También es ingeniería!**



Delonia is a Software Development and IT Consulting Company made up of highly qualified professionals specialized in the management and execution of **Software Engineering projects.**

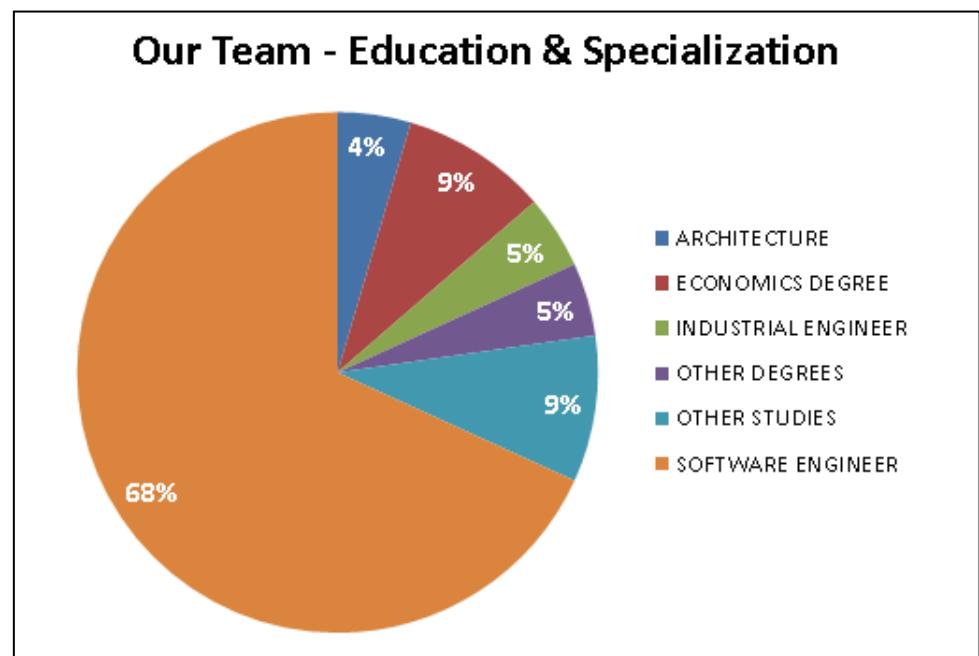
We are based in Madrid, Segovia and London, currently serving customers throughout Europe and planning to enter Asian and Middle East markets.

TALENT

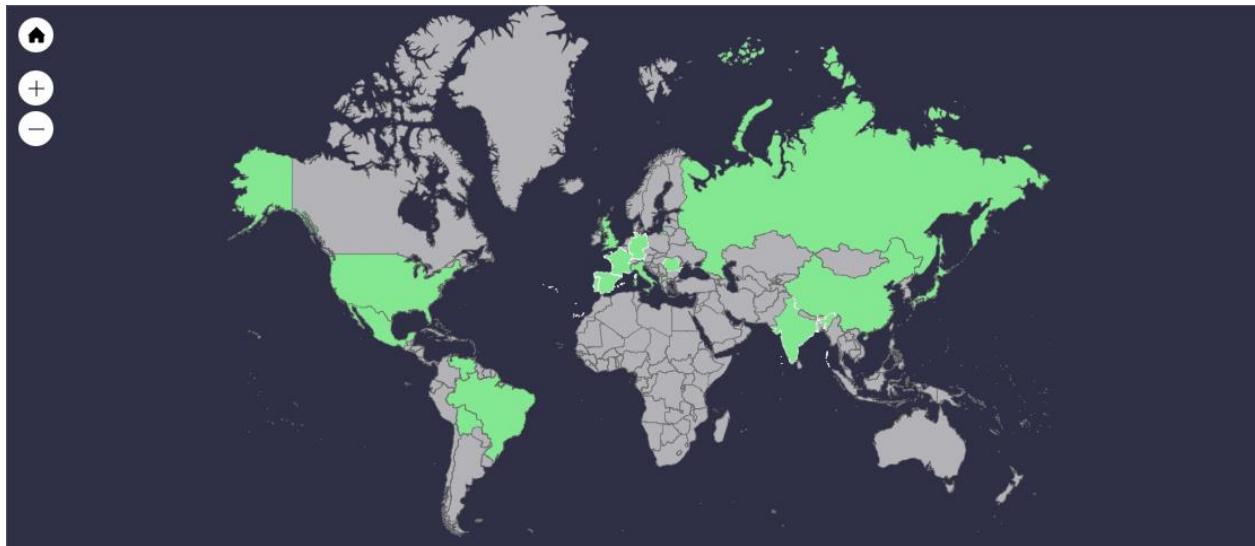
KNOWLEDGE

EXPERIENCE

**90% of our staff has
University Degree, almost
70% are Software Engineers.**



International Team & Clients



What to work on IT Engineering?

David Martín

Oportunidades en
Proyectos Europeos de
Investigación: BIM4REN



David Martín Moncunill, Ingeniero Informático.
MsC. PhD. Directamente involucrado en más de
10 proyectos europeos en los últimos 5 años y
consultor para múltiples organizaciones en
distintas temáticas y programas europeos.
Intereses (investigación): usabilidad, HCI,
sistemas de organización del conocimiento,
gestión de proyectos.



d.martin@comet.technology



Soporte a la comercialización de
resultados de I+D+I → Desde TRL 1
hasta mercado.

Ganadores de 5 proyectos europeos en
2018 → Usabilidad + Comunicación

<http://comet.technology>



Europa invierte en I+D+i

- Modelo subvenciones (100%, 70%, 50% + indirectos)
- Múltiples programas → El más conocido H2020
- Fuerte impulso a las SME
 - Acciones “tradicionales” (RIA, IA, CSA, FTI)
 - SME Instrument



<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/index.html>



Problemas habituales

TÉCNICO	COMUNICACIÓN	ADMINISTRATIVO
		



Oportunidad Real

- “Champions League” de la I+D+i
- Financiación de necesidades / desarrollos reales
- Imagen
- Red de contactos, colaboraciones, información
- Fijar/ Acreditar política de I+D+i en la empresa



Oportunidad Real

- “Champions League” de la I+D+i
- Financiación de necesidades / desarrollos reales
- Imagen
- Red de contactos, colaboraciones, información
- Fijar una política de I+D+i en la empresa



BIM4REN: BIM

- BIM: Building Information Modeling
- Metodología de trabajo para la creación y gestión de un proyecto de construcción.
- Centralizada en un modelo de información digital.
- PLANO(2D) + geometría (3D) + tiempos (4D) + costes (5D) + ambiental (6D) + mantenimiento (7D)



BIM4REN: RIA

- Renovación de la edificación europea.
- Flujos de trabajo (3)
- Nuevas metodologías, procesos, herramientas
(SW & HW)
- “One Stop Access Platform” – Web Based (UCD)

BIM4REN: WP & Pilotos

	Country	France	Spain	Italy
Buildings characteristic	Use <i>dwellings² area per building</i>	Residential (social housing) 14 – 800 m ²	Residential (private) 20 – 1000 m ²	Residential (student dormitory) ? – 2000 m ²
Involved stakeholders	Building owner Architect General construction company Technical support	LOG Private SHO Contractor Contractor	Multi owner private property Contractor KURS SME	Public organisation ATI CMB Carpi Large Enterprise R2M / GBC
renovation	Main specific elements of planned renovation Foreseen tools used	IDDS + in protected area Scan2BIM with Snapkin for geometry adquisition	Basic ETICS HeatPURE FDD HVAC charac	Deep renovation (HVAC incl) with change of its use. IES full suite VRMP Certification incentive
LOGIREP, Paris, France		Kursaal, San Sebastian, Spain	CMB, Venice, Italy	

¡GRACIAS!



Dr. Eng. David Martín Moncunill
Manager Área Proyectos I+D+i
d.martin@comet.technology

25 Años AETEL

Homenaje a la diferentes
Juntas Directivas a lo largo
de estos años



25 Años AETEL

- María Ángeles Andrés López –
Presidente 2002-2003
- Carlos Berbell Sánchez –
Presidente 2015

25 Años AETEL

- Rodolfo Boris Oporto Quisbert – Presidente 2011
- Sergio Lazaro Esteban – Presidente 2010

25 Años AETEL

- Alberto Ramos Ordas –
Presidente 2008-2009
- Javier Martínez Arrieta –
Presidente 2012-2013

25 Años AETEL

- Pablo Rodriguez Amaro –
Presidente 2005-2007
- Henri Bafunyembaka –
Vicepresidente 2017

25 Años AETEL

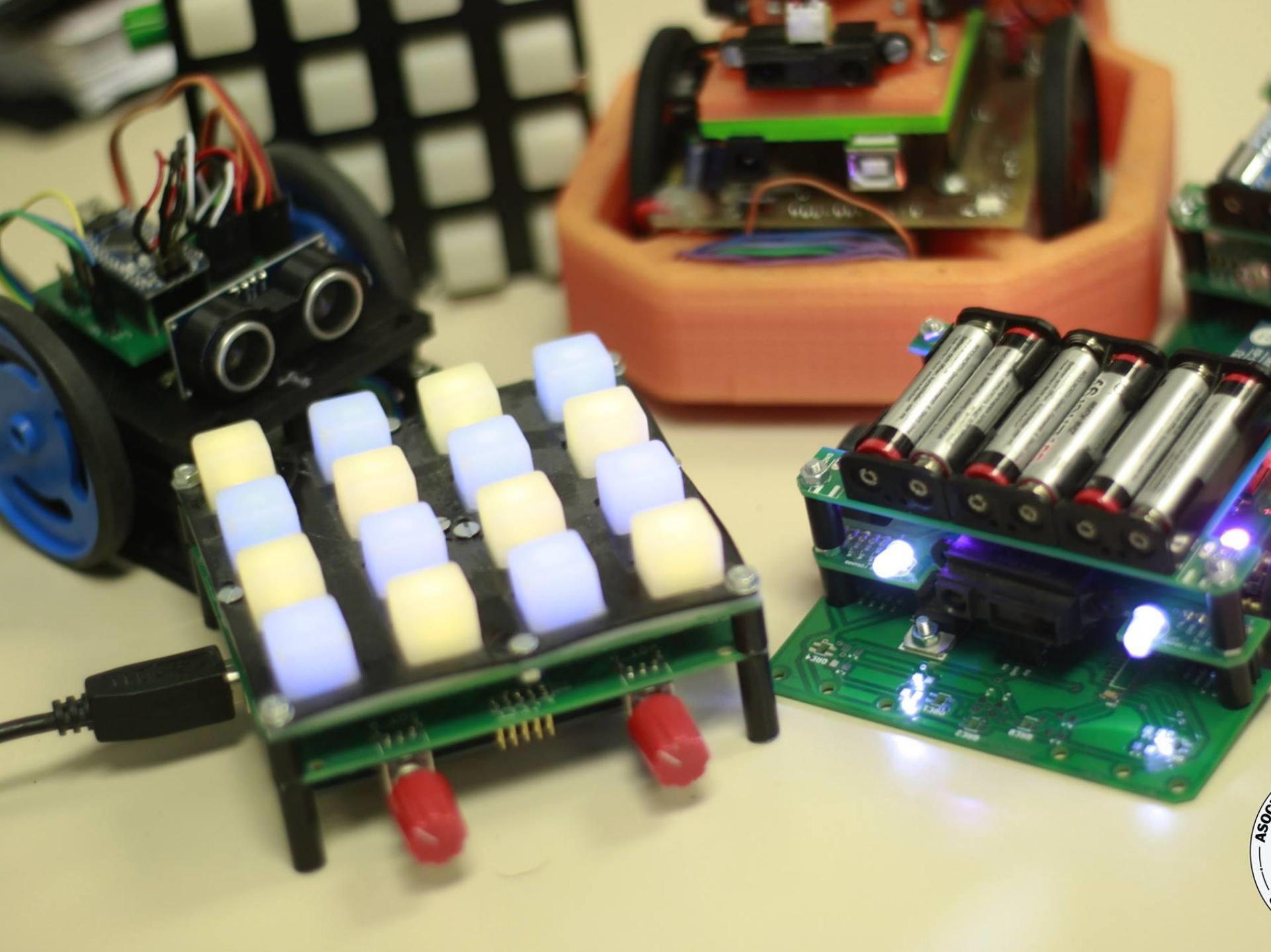
- Alberto García Hortsman –
Tesorero 2003
- Ricardo Sanz Retuerta –
Presidente 2016

25 Años AETEL

- Perla Isabel Celaya Rodríguez – Presidente 2018
- Victor Bernardos - Secretario 2018
- Manuel Ballesteros Carballo – Presidente 2014







ASOC

Organizador de Sfera

José Fernandez Ruiz
(2004 - 2005)

+info: www.euitt.upm.es

Del 23 al 28 de Abril

Las JORNADAS SOBRE

la TECNOLOGIA y el HOMBRE

!! asignatura
pendiente...



...y nuevas
reflexiones!!



M
a
d
r
i
d

E.U.I.T.
Telecomunicación

- DOSSIER
- CONFERENCIAS
- DEBATES
- MUSICA
- PROYECCIONES...

Sphera

sPhErA

CENSORED

CENSORED



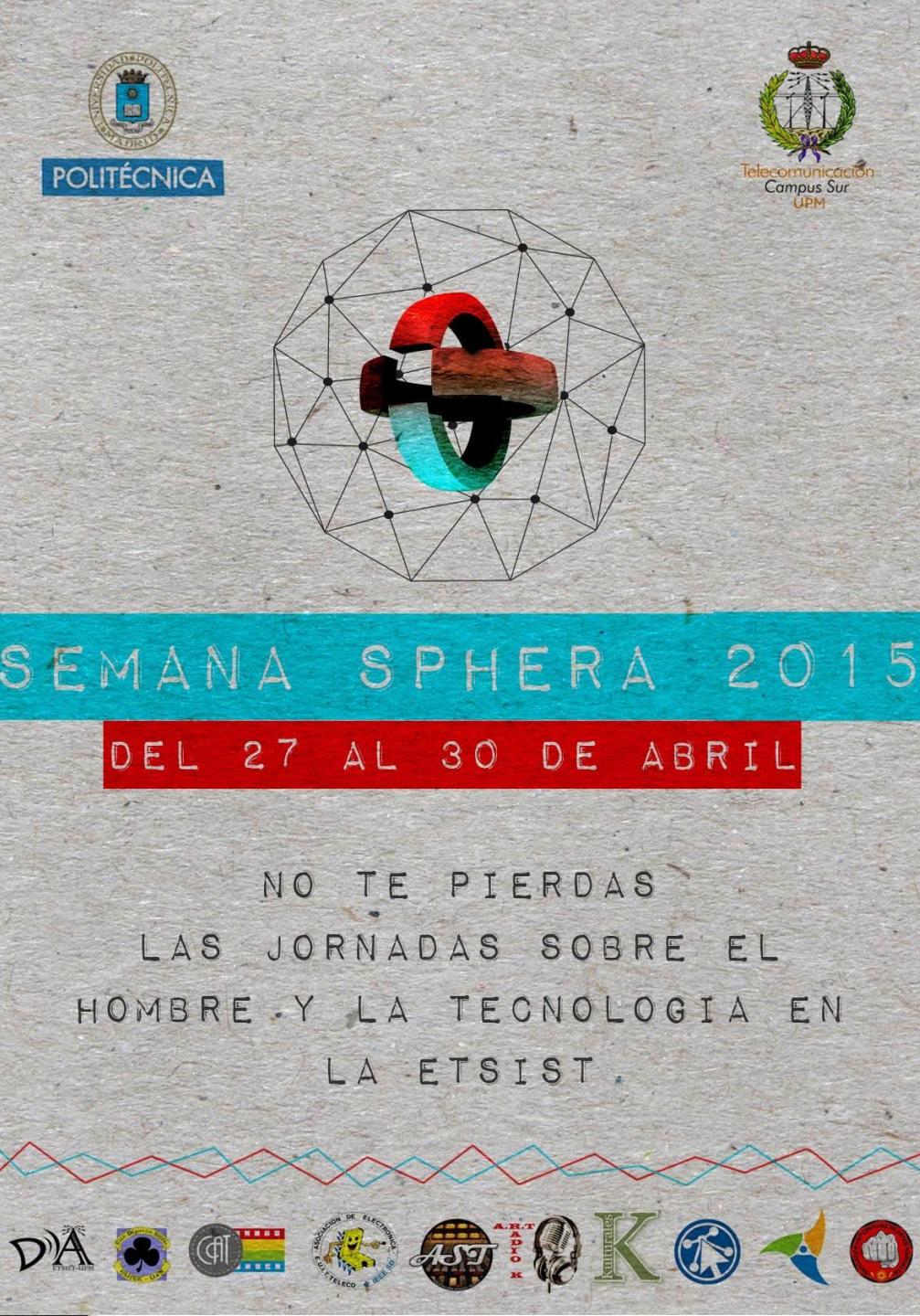
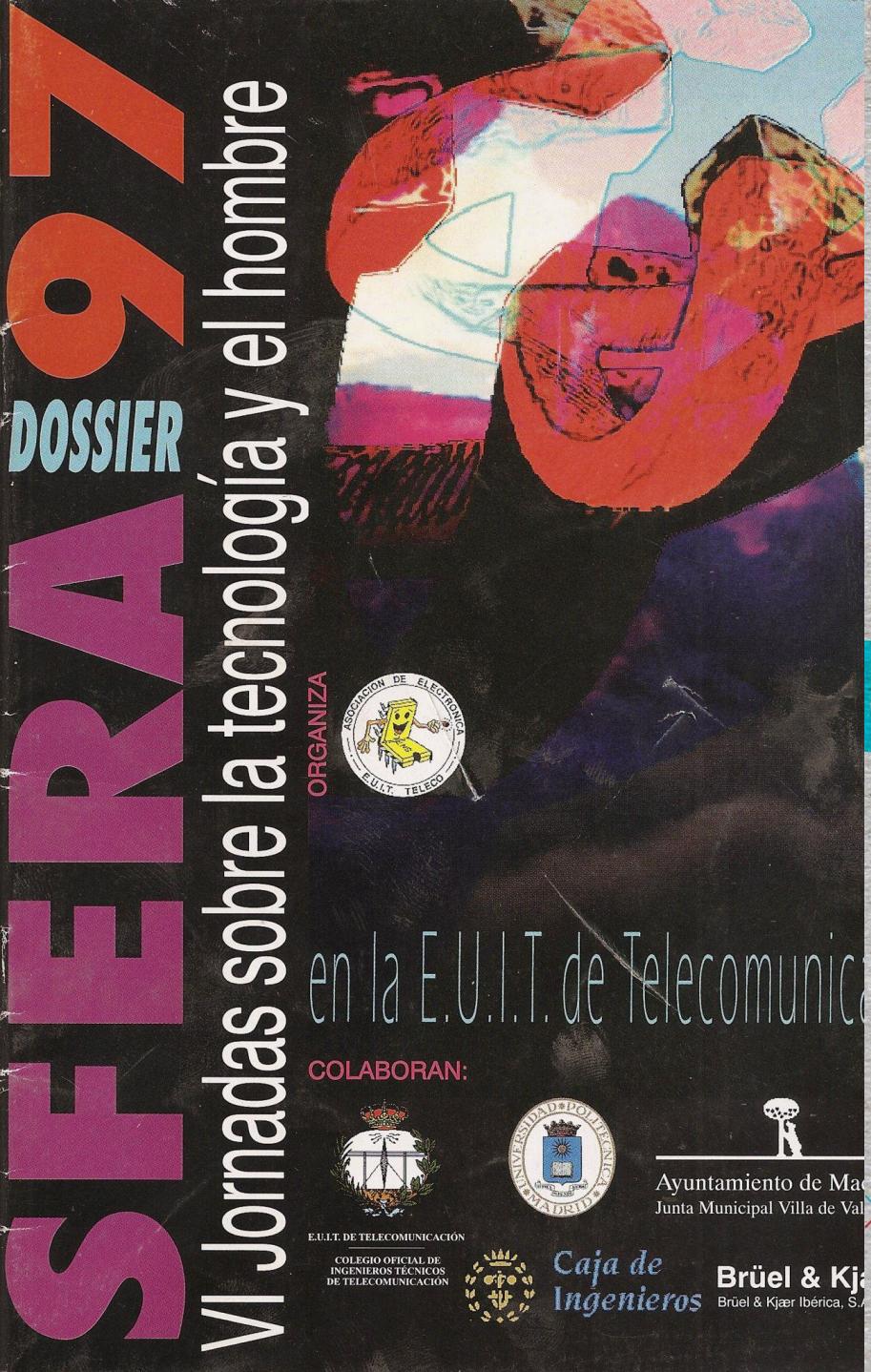
Con la colaboracion de

Fender®



MADRID
MUSICAL
SHOW ROOM





25 Años AETEL

- Angel Parra Cerrada –
Presidente 1995-1996
- Carlos Paricio Diez –
Presidente y fundador de
AETEL 1991

Agradecimientos ETSIT y UPM

Rubén De Diego

Rafael Herradón

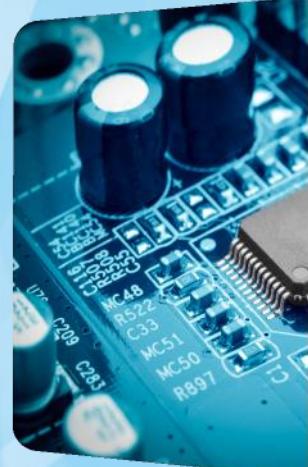
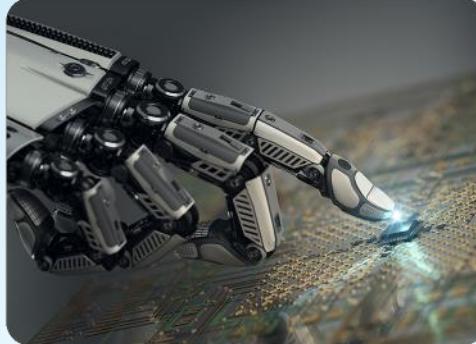
César Sanz

Amador González

Antonio Pedrero

Clausura - Jesús Fraile Ardanuy

Institute of Electrical and
Electronics
Engineers (IEEE)



IEEE Day 2018

*Jesús Fraile Ardanuy
IEEE Spain Section Chair*

What is IEEE?

- ▶ Institute of Electrical and Electronics Engineers.
- ▶ IEEE is the world's leading professional organization dedicated to **advancing technology for the benefit of humanity**.
- ▶ An international, **non-profit organization**, its aim is to **serve society in all aspects of the electrical, electronic, and computing fields and related areas of science and technology** that underlie modern civilization.



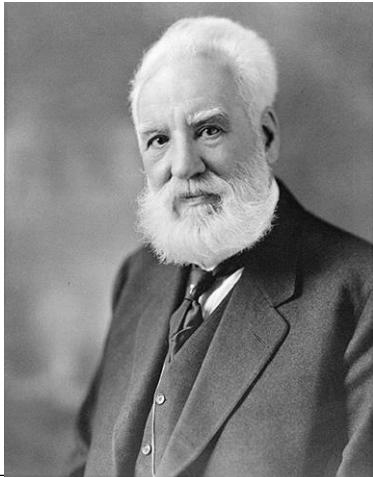
IEEE Foundation

1884

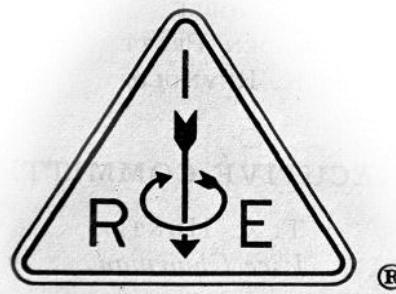


AIEE

American Institute
of Electrical Engineers



1912



IRE

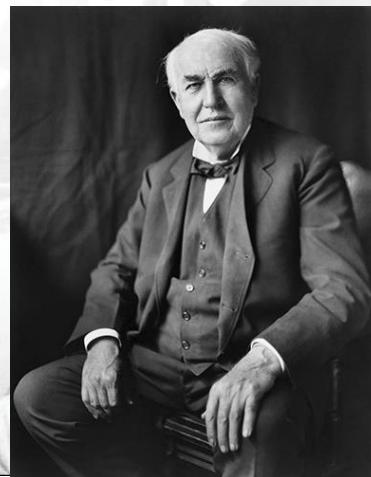
Institute of Radio
Engineers

1963



IEEE

Present

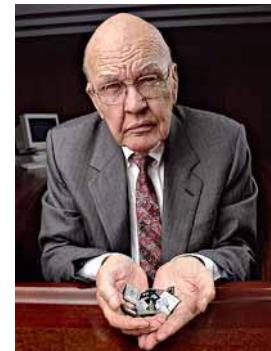
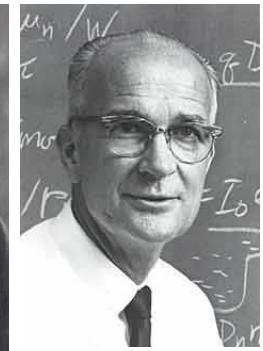


IEEE Outstanding people

- ▶ Throughout its history, **28 members from IEEE** (including AIEE and IRE members) have won the **Nobel Prize**.

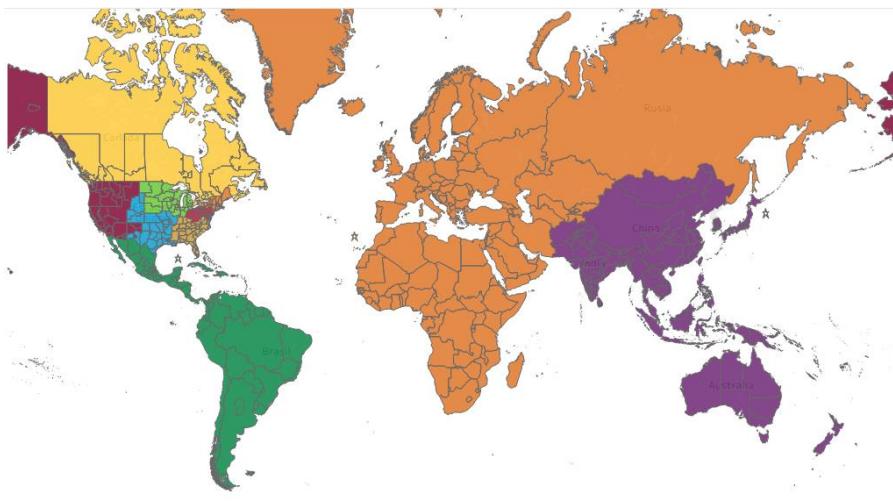
1 Guglielmo Marconi (MH)	1909 Physics
2 Robert Andrews Millikan	1923 Physics
3 Willem Einthoven	1924 Medicine
	Chemistry
4 Irving Langmuir	1932(P)
5 Edward Appleton (MH)	1947 Physics
6 John Bardeen	1956 Physics
7 Walter Brattain	1956 Physics
8 William Shockley (MH)	1956 Physics
9 Charles Townes (MH)	1964 Physics
10 John Bardeen	1972 Physics
11 Brian Josephson	1973 Physics
12 Leo Esaki (MH)	1973 Physics
13 Arno Penzias	1978 Physics
14 Robert W. Wilson	1978 Physics
15 Arthur Schawlow	1981 Physics

Nicolaas	
16 Bloembergen (MH)	1981 Physics
17 Leon M Lederman	1988 Physics
18 Norman F. Ramsey	1989 Physics
19 Herbert Kroemer	2000 Physics
20 Jack S. Kilby (MH)	2000 Physics
21 Zhores I Alferov	2000 Physics
22 Charles K. Kao	2009 Physics
23 George E. Smith	2009 Physics
24 Willard S. Boyle	2009 Physics
25 Hiroshi Amano	2014 Physics
26 Isamu Akasaki	2014 Physics
27 Shuji Nakamura	2014 Physics
28 Arthur Ashkin	2018 Physics
29 Gerard Mourou	2018 Physics



IEEE Organization

- ▶ Grouped in **geographic areas**, reflecting where members live and works...
 - **10** Geographic regions
 - **342** Sections within Regions
 - **3,005** Student Branches at colleges and Universities over 100 countries



IEEE Organization

- ▶ ...and **Technical areas**, based on members technical fields of interest (knowledge communities, both global-Societies and local-Chapters)
 - **39** Technical Societies, **7** Technical Councils, and **12** general technical communities,
 - **2,116** Chapters that unite local members with similar technical interests
 - **1,481** Student Branches Chapters of Technical Societies.



IEEE Societies

- ▶ Aerospace & Electronic Systems
- ▶ Antennas & Propagation
- ▶ Broadcast Technology
- ▶ Circuits & Systems
- ▶ Communications
- ▶ Components, Packaging, & Manufacturing Technology
- ▶ Computational Intelligence
- ▶ Computer
- ▶ Consumer Electronics
- ▶ Control Systems
- ▶ Dielectrics & Electrical Insulation
- ▶ Education
- ▶ Electromagnetic Compatibility
- ▶ Electron Devices
- ▶ Engineering in Medicine & Biology
- ▶ Geoscience & Remote Sensing
- ▶ Industry Applications
- ▶ Information Theory
- ▶ Instrumentation & Measurement
- ▶ Intelligent Transportation Systems
- ▶ Engineering in Medicine & Biology
- ▶ Geoscience & Remote Sensing
- ▶ Industrial Electronics
- ▶ Information Theory



IEEE Societies

- ▶ Instrumentation & Measurement
- ▶ Intelligent Transportation Systems
- ▶ Magnetics
- ▶ Microwave Theory & Techniques
- ▶ Nuclear & Plasma Sciences
- ▶ Oceanic Engineering
- ▶ Photonics
- ▶ Power Electronics
- ▶ Power & Energy
- ▶ Product Safety Engineering
- ▶ Professional Communication
- ▶ Reliability
- ▶ Robotics & Automation
- ▶ Signal Processing
- ▶ Social Implications of Technology
- ▶ Solid-State Circuits
- ▶ Systems, Man, & Cybernetics
- ▶ Ultrasonics, Ferroelectrics, & Frequency Control
- ▶ Vehicular Technology



IEEE Organization

- ▶ Members are also grouped up attending to non-technical interests or affinities.
- ▶ **486** affinity groups worldwide
- ▶ Approved affinity groups:
 - Consultants networks, CN
 - Life Members, LF.
 - Women in Engineering, WIE
 - Young Professional, YP
- ▶ Other groups:
 - IEEE Entrepreneurship
 - Special Interest Group on Humanitarian Technology (SIGHT)



IEEE Spain

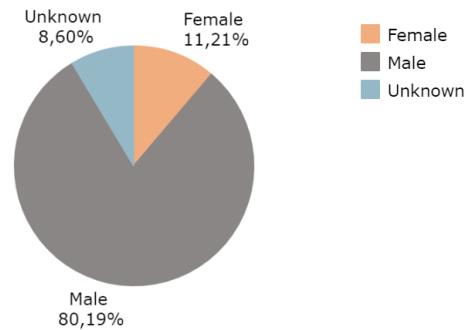
- ▶ Founded in **April 1968**, in Region 8 (4th oldest Section in the Region). **We are celebrating our 50th Anniversary!**
- ▶ Between 1963-1967 there were around 25 members from AIEE and IRE located in Spain
- ▶ First Chair: Rogelio Segovia (ETSIT-UPM).
- ▶ First IEEE Student Branch in Spain (2nd oldest in Region 8) was born in ETSIT-UPM in 1964.



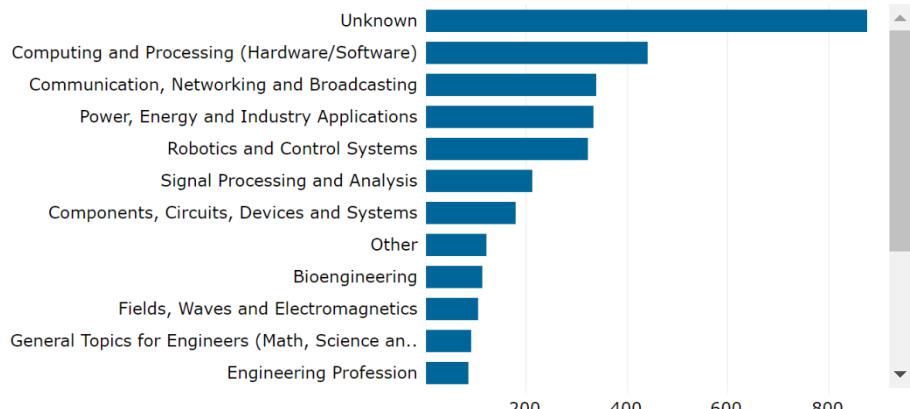
IEEE Spain Section

3,442 active members

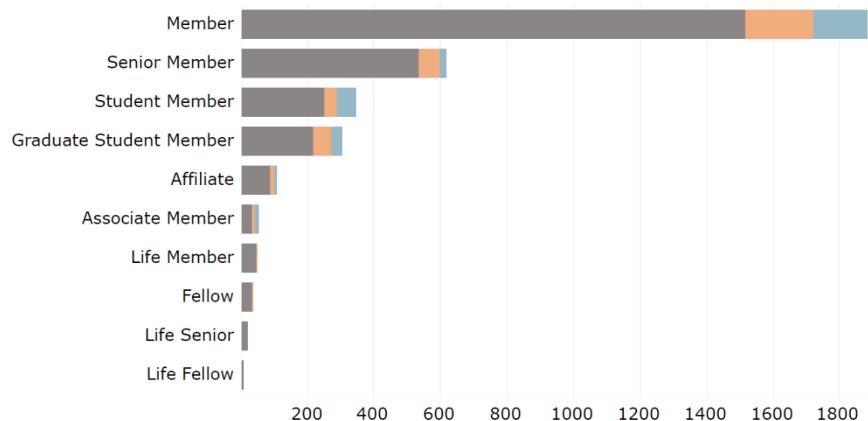
Region	Council	Section	Grade Category	Grade	Total
R8	Region 8 - No Council	Spain Section	IEEE Grades	Associate Member	56
				Fellow	38
				Graduate Student Member	307
				Life Fellow	8
				Life Member	50
				Life Senior	23
				Member	1.887
				Senior Member	618
				Student Member	346
			Other Grades	Affiliate	109
				Total	3.442
		Total			3.442
		Total general			3.442



Count by Technology Focus Area



Count by Grade and Gender



IEEE Spain Section

- ▶ 23 Technical chapters
- ▶ 4 Affinity Groups (LM, WIE, YP and SIGHT)
- ▶ 17 Student Branches



IEEE Spain

Chair: Jesús Fraile
Ardanuy



ViceChair: Alfonso
Lago Ferreiro



Secretary: Fernando
Muñoz Manrique



Treasurer: Julia Merino
Fernández



PastChair: Antonio
Luque Estepa



YP: Manuel Ballesteros
Carballo



AFTER

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Investigación en
Universidades Extranjeras