Astronomy and Disability: What is Essential is Invisible to Eye

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UTN- Mendoza, Argentina

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Introduction

The approach to the Astronomy, the concepts, the findings and the development of the sense of wonder before the comprehension of the natural world is a human right.

The education for inclusion in Astronomy uses a range of educational and scientific insights that bring the sky to a palpable and sensitive space by generating specific resources.

Methodology

Creating strategies, tools and resources to provide the people with special educational needs or people with visual, hearing and/or motor disabilities, a participative learning place; accessible and, at the same time, funny is part of our general project on Astronomy and inclusion.

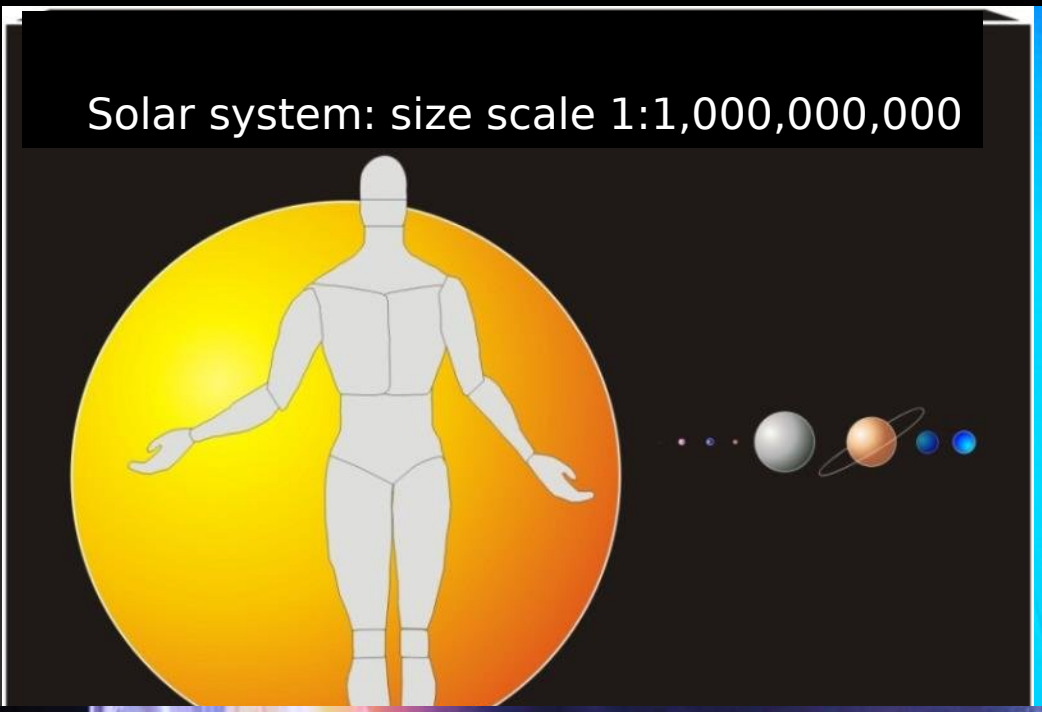
The resources must be interesting and educative, without neglecting the base of scientific outreach, ensuring interaction in a entertaining context.

The Models

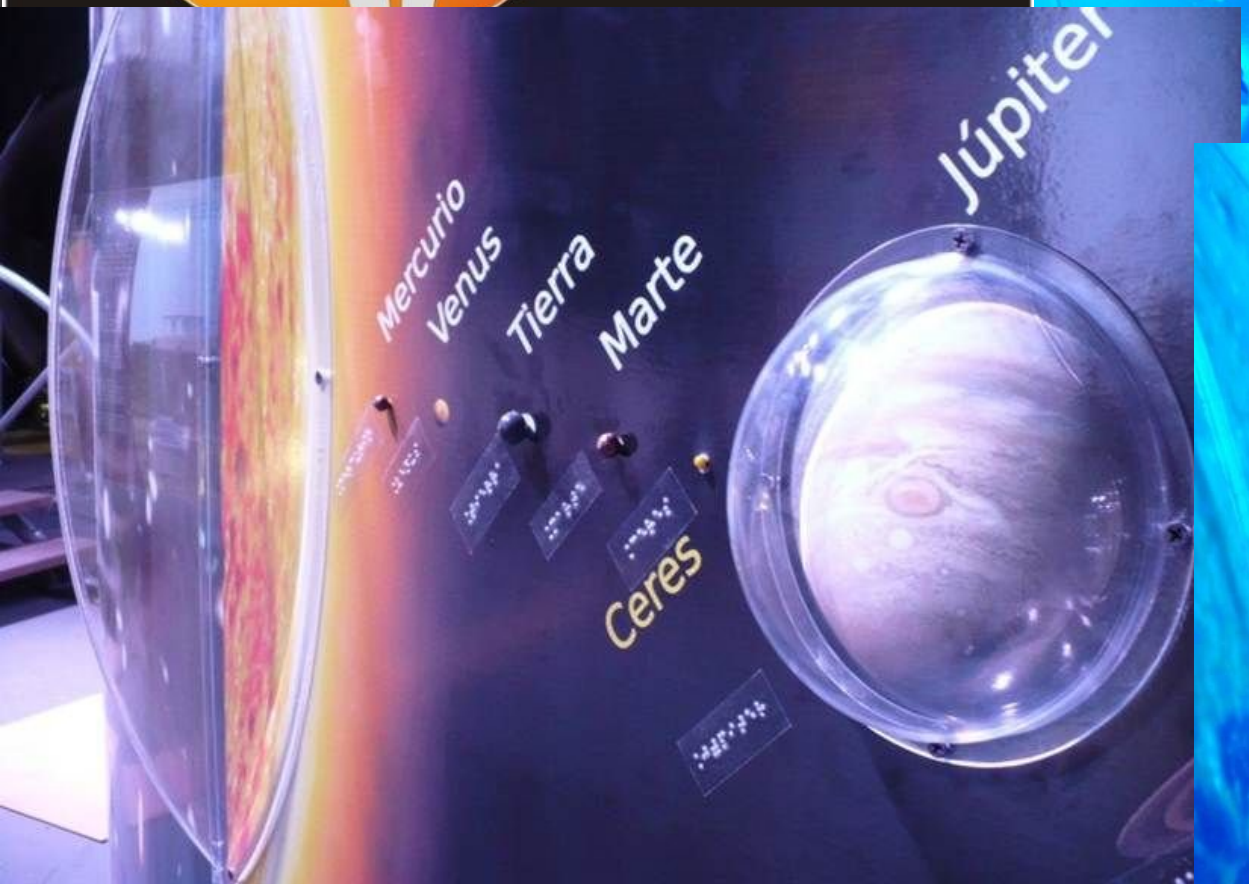
The goal of the project is to create models on Astronomy and Astrophysycs adeccuated to all audiencies, addapting all the subjects without limits.

At the moment, the main focus of development are:

- Solar System (General)
- Gravity
- Bodies of the Solar System: Mars
- Celestial Sphere (Planetarium)
- Cosmic Rays


Solar system: size scale 1:1,000,000,000

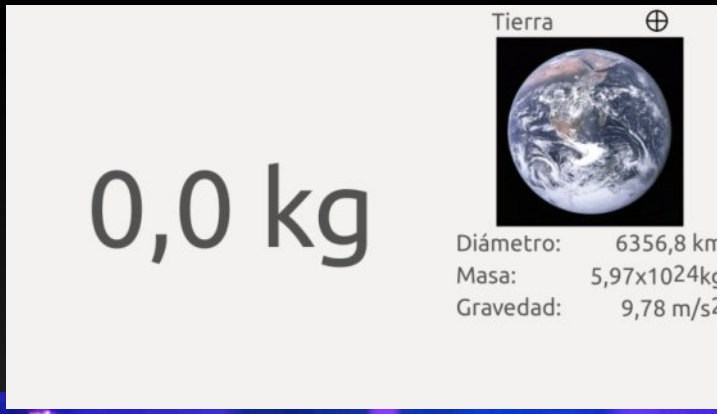

Mercurio
Venus
Tierra
Marte
Ceres
Júpiter


Mercurio
Venus
Tierra
Marte
Ceres
Júpiter


Mercurio
Venus
Tierra
Marte

Gravity effects

+ 2 Dwarf planets!

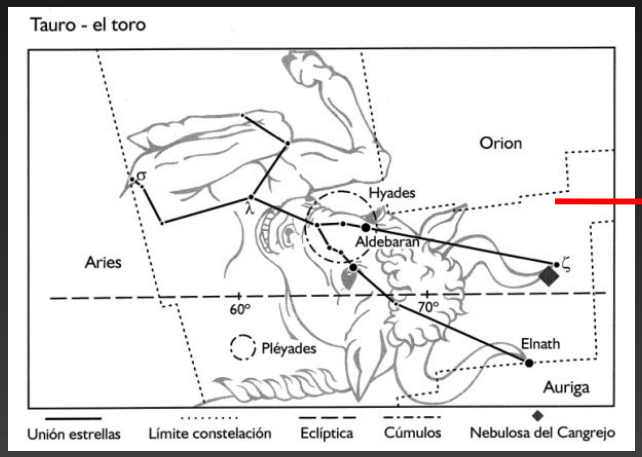


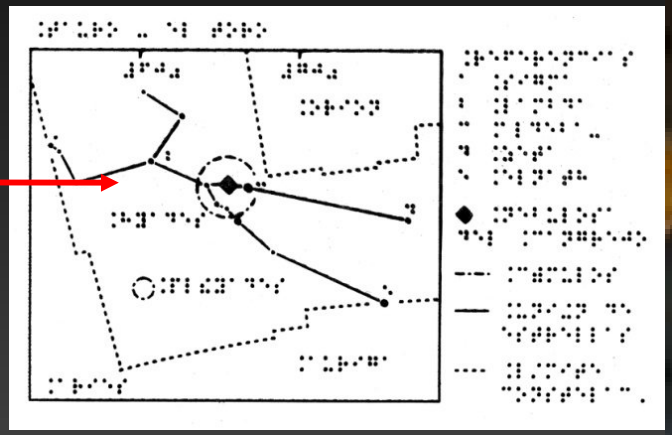
Mars Tactile

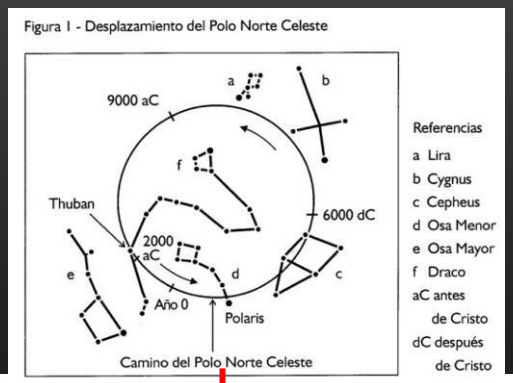
Touch, see, listen and know a completely new world-
(based on Arduino Mega 2560, a previous version of the ADK)

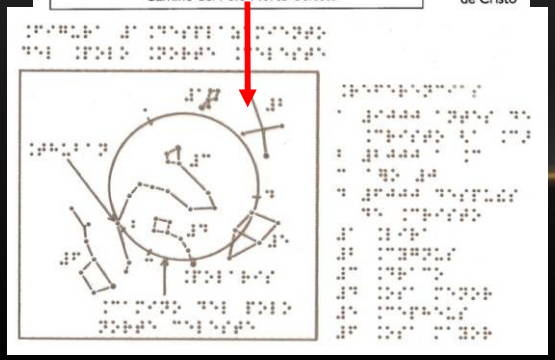
A planetarium for all audiences

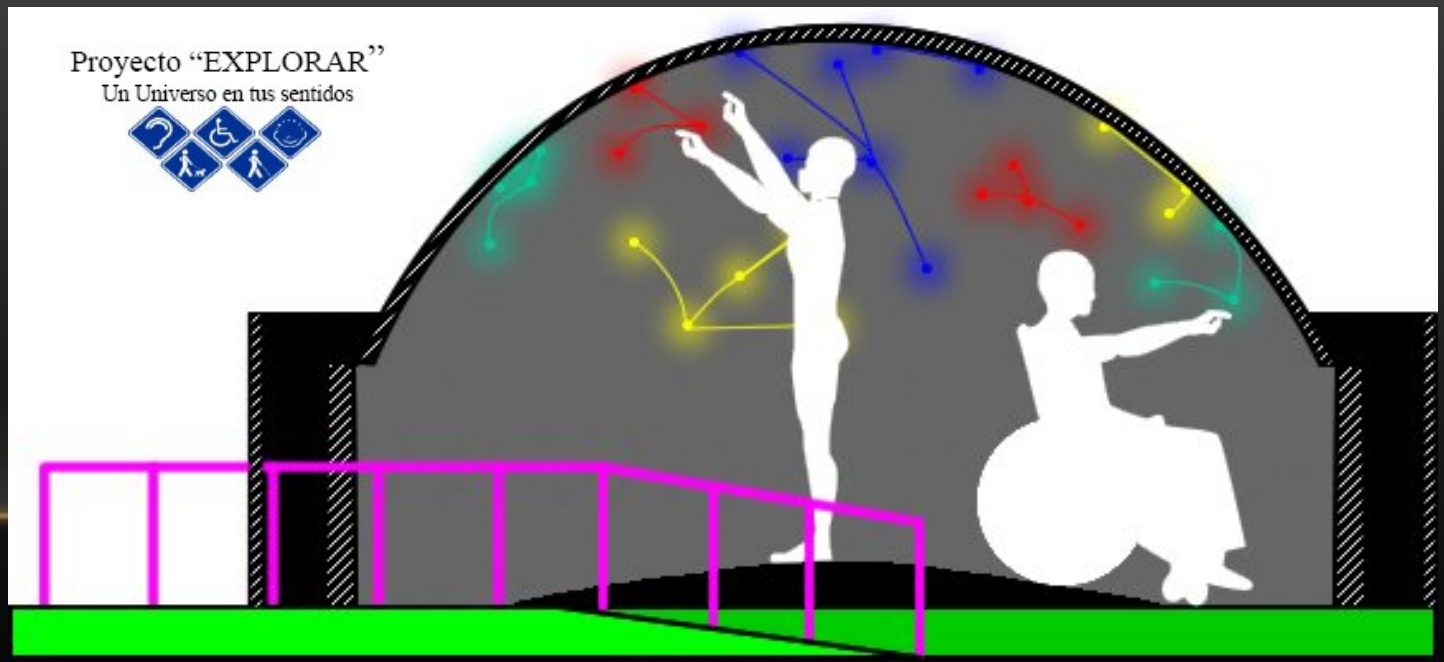
Touch the sky with your hands: An especial Planetarium for blind, deaf, motor disable (2005)





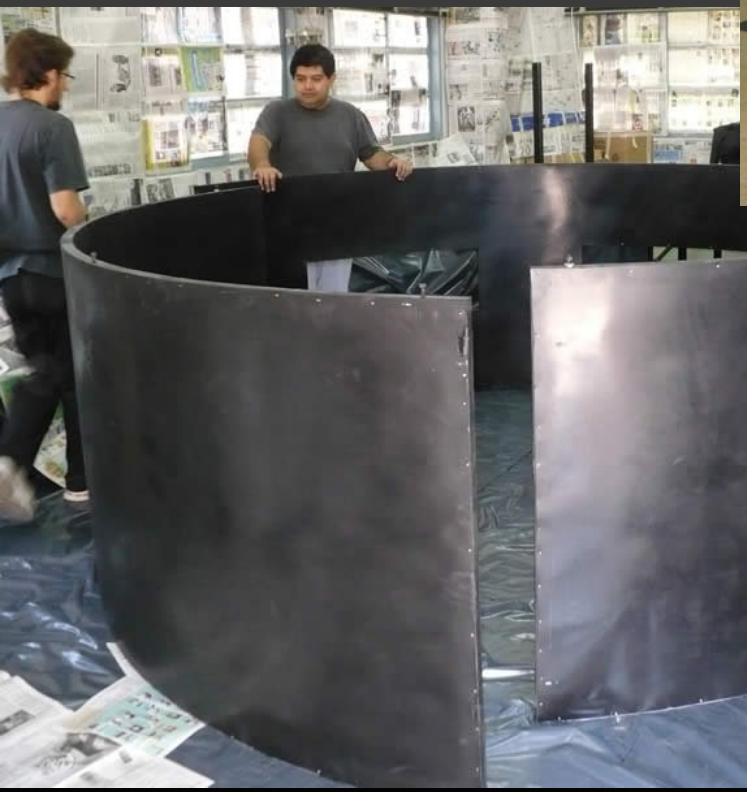







2010


2010



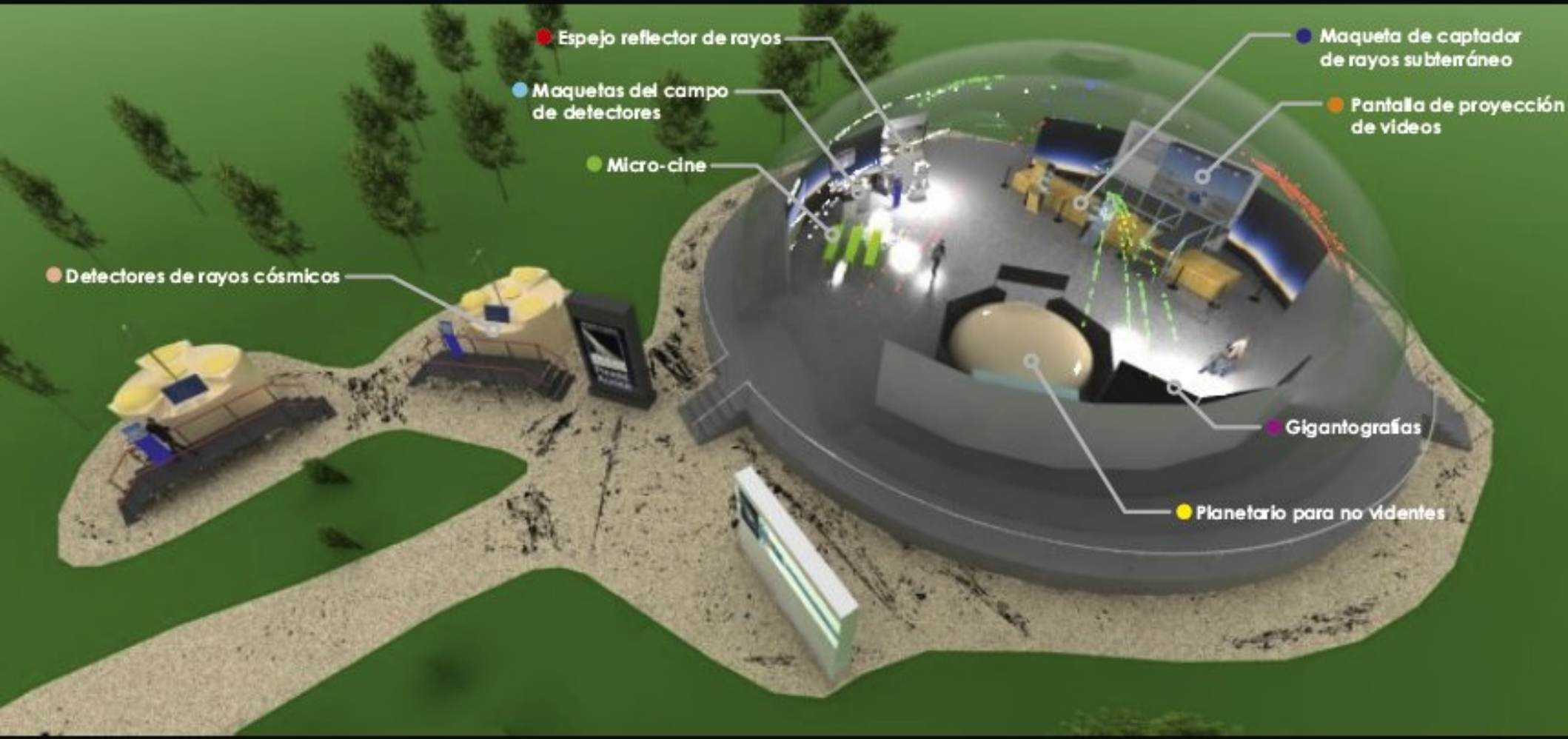
2011

2011
“Looking to the future”

ESPACIO ITEDA-PIERRE AUGER

El espacio pretende exhibir e informar acerca del trabajo del ITEDA acerca de la observación y estudio de los rayos cósmicos ultra-energéticos. En el exterior se encuentran los detectores de rayos de superficie para que el público pueda observar su funcionamiento. El espacio interior cuenta con varias maquetas de los captadores de rayos, pantallas para proyección y el planetario para no videntes.

TECNÓPOLIS



18 de mayo de 2011 creavis

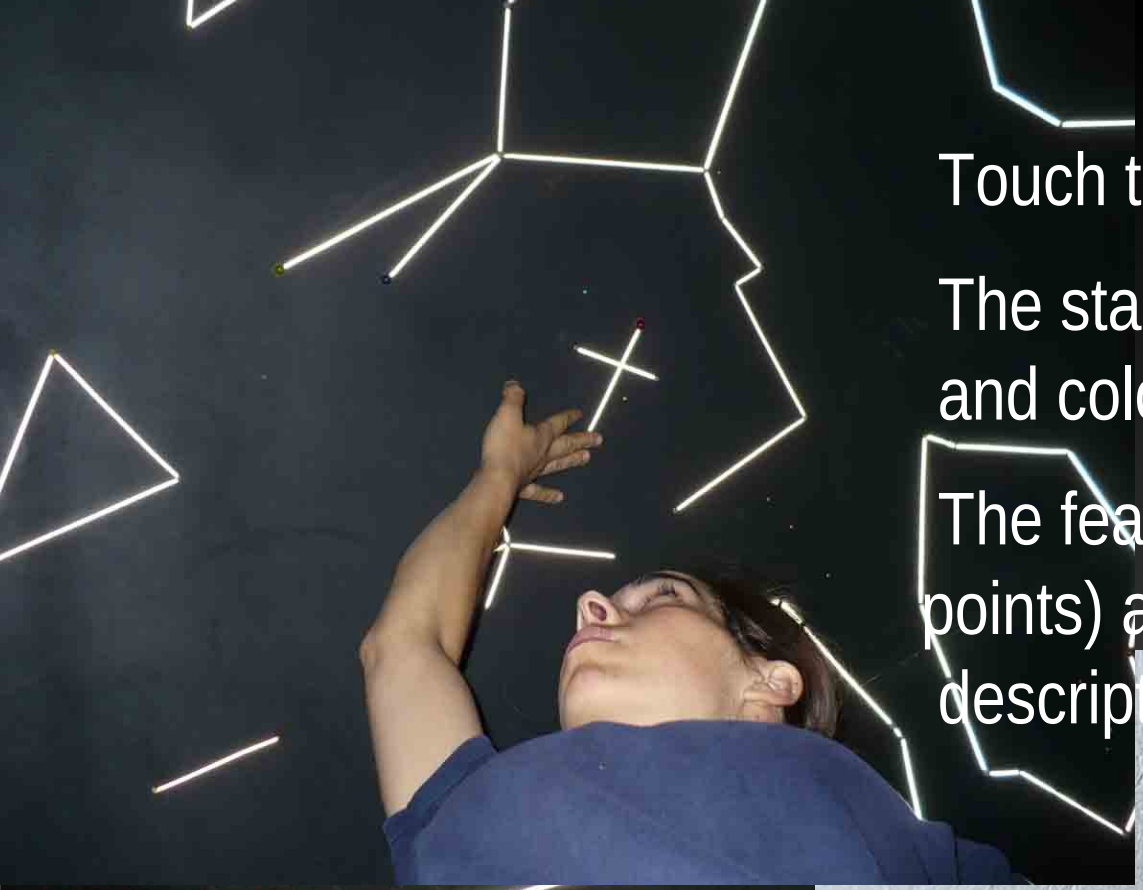

PLANETARIO
TOCAR EL CIELO CON LAS MANOS
SHOW

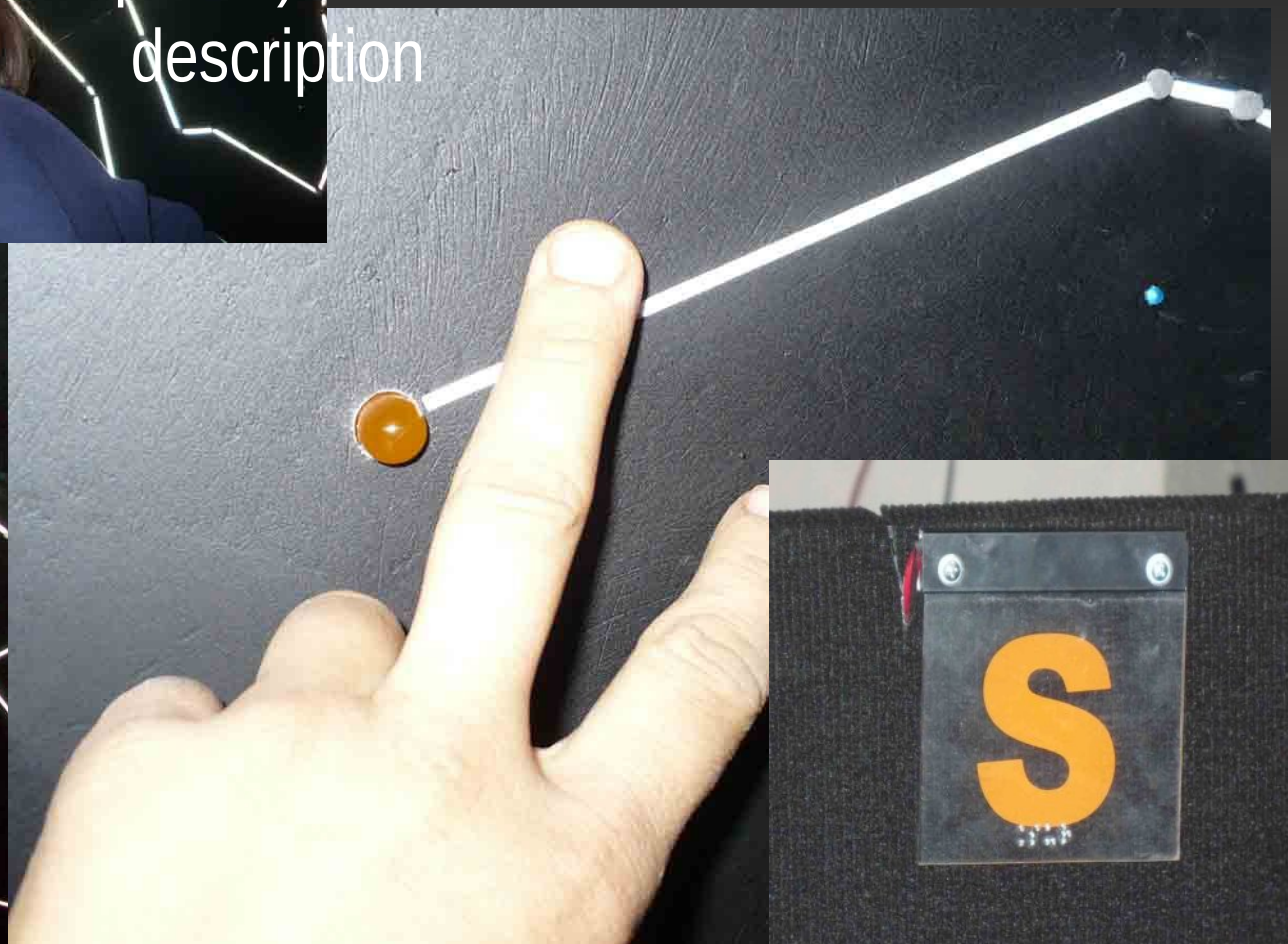

PLANETARIO

Touch the Celestial Sphere

The stars are LEDs with different sizes and colors

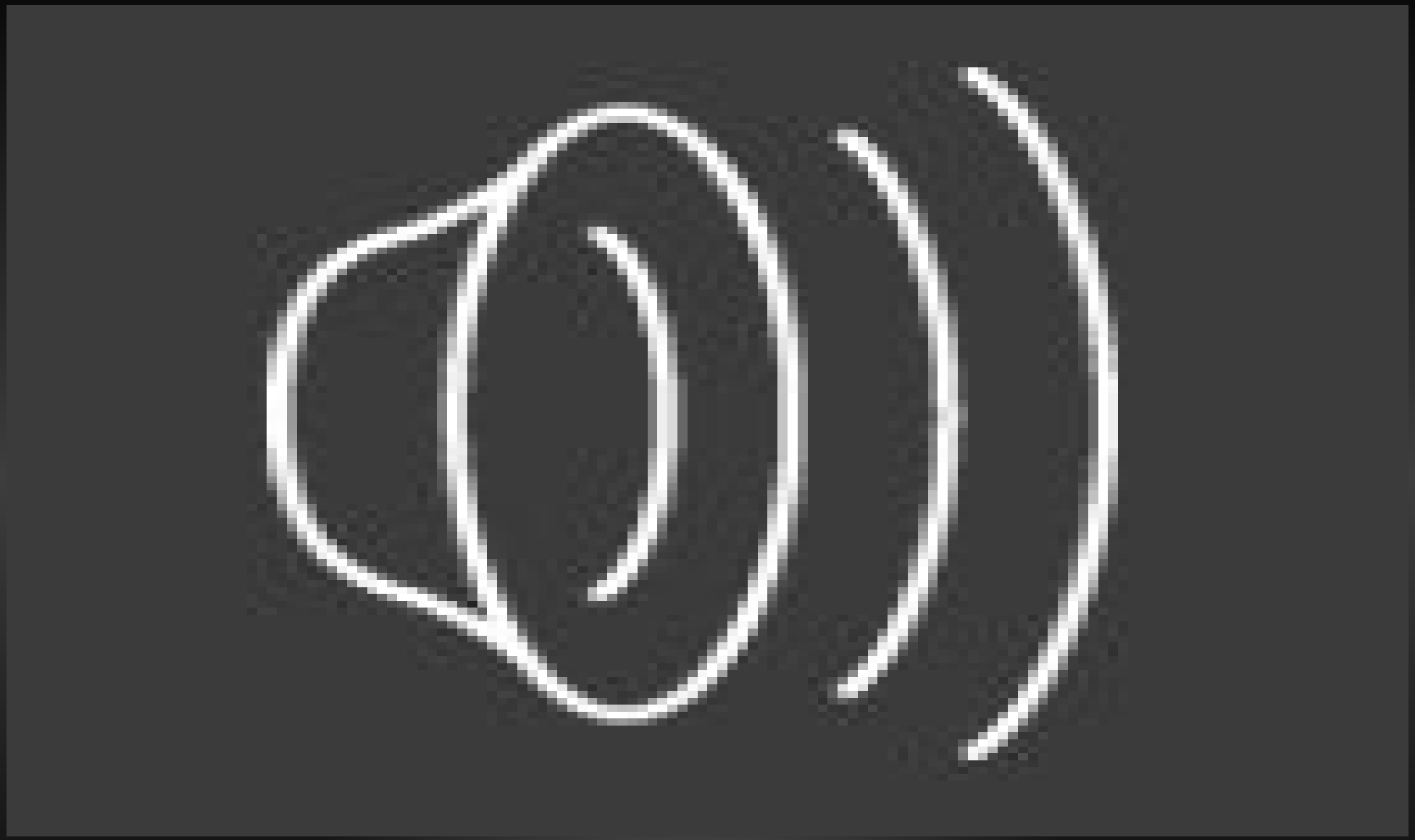
The features (stars, asterism, cardinal points) are in relief and with Braille description






SHOW

In Argentina,
this exhibition was visited by
more than 3 million people.



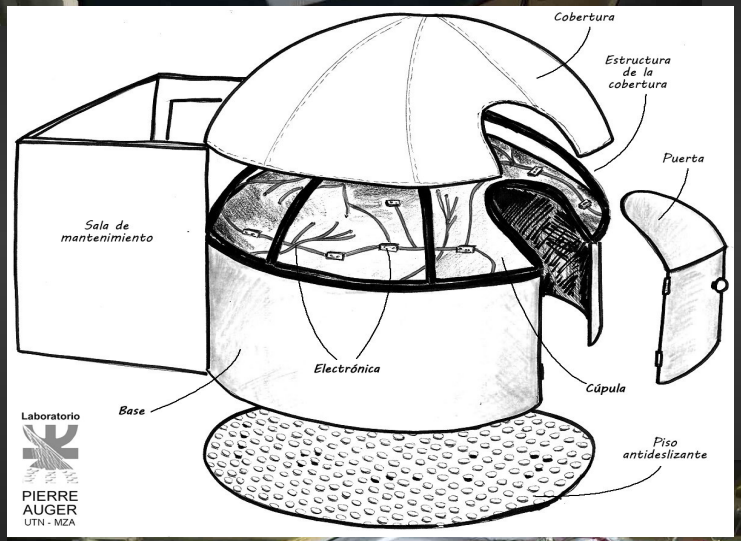
Cosmic Rays: adapted Geiger counter

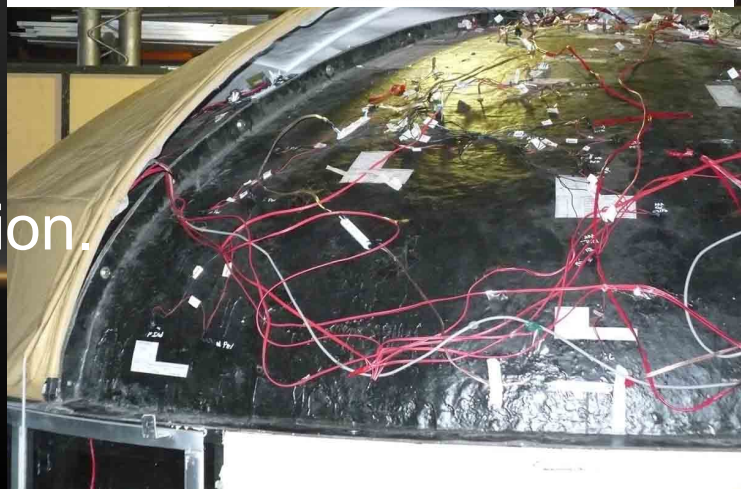
detect, see and listen invisible particles

Achievements

Original development in:

- ✓ Design of electronics.
- ✓ Design of original software.
- ✓ Scripts and music for Planetarium functions.
- ✓ Design of models and their associated explanatory script.
- ✓ Printed material in braille and 3D.
- ✓ Filming associated with sign language.
- ✓ Interviews and recopilation for documentation.





Summary and Conclusions

- This proposal is intended for general audiences, but especially designed for people with any type of disability.

- This type of resources, never fully explored and a reflection of an undeniable social demand, have made a positive impact in the audiences.

- This experience (the design, implementation and commissioning progress of the project) integrates disciplines, allows cooperative work, mutual learning and training of specialized human resources.

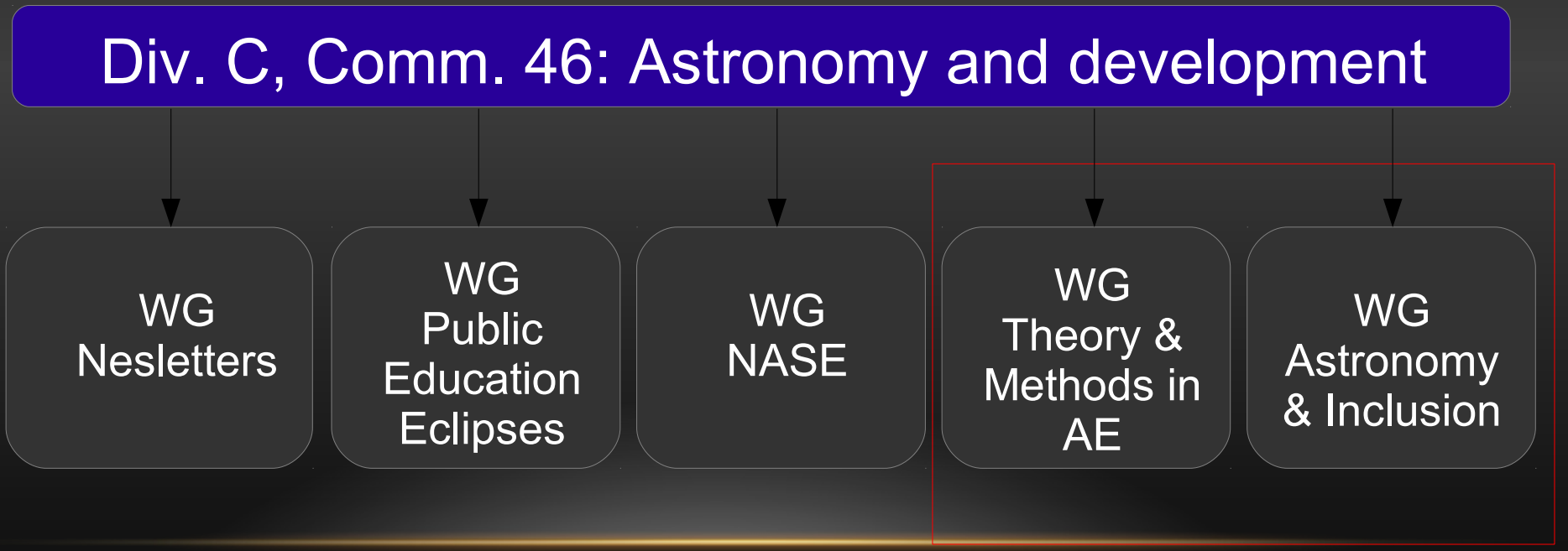
This proposal reports benefits in the case of special schools, as well as educational establishments with people with disabilities integrated into their classrooms.

The development and auxiliary material (texts, brochures, workshop materials), could be included between the supplies for different ***Equality Training Programs***.

The **International Astronomical Union** (IAU) was founded in 1919 to “promote and safeguard astronomy and to develop it through international cooperation.”

There are currently 10,155 individual members in 90 countries. The IAU is funded through the adhering countries. Almost all of the funds supplied from the dues are used for the development of astronomy.

The scientific and educational activities of the IAU are organized by its 9 Scientific Divisions and, through them, its 40 specialized Commissions covering the full spectrum of astronomy, along with its 75 Working Groups



Division C, Commission 46: new Working Group “Astronomy and Inclusion”

Chair: Beatriz García – ITeDA, UTN Mendoza
Vice-chair: Amela Ortiz-Gil, Observatorio Astronómico – Univ. de Valencia

IAU-Members:
Dominique Proust, Paris-Meudon observatory.
Rosa Ros, chair of NASE
Kimberly Kowal Arcand, Media Production Coordinator, Chandra X-ray Center/Smithsonian Astroph. Observ.

IAU.Non members.
Lina Canas, NUCLIO – Interactive Astronomy Nucleus /GTTP, Portugal.
Vivian Hoette, Director of Education & Outreach, University of Chicago, Yerkes Observatory.
Mike Simmons, Astronomers Without Borders.
Thilina Heenatigala. Communications Manager Astronomers Without Borders (AWB)
Peggy Walker, Astronomers Without Borders, Network National Coordinator - U.S.A. Co - Chair - Disabilities Working Group
Silvia Martínez Núñez, Inst. de Física Aplicada a las Ciencias y las Tecnologías Universidad de Alicante , Spain.
Frank Busutil, Founder of Project Bright Sky, Astronomers Without Borders

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Visitors to the space: more than 3 million people

Governor of the province of Mendoza, with students of the Hellen Keller school at “La Brújula” (The Compass) 2013

Thank you very much
for your attention

La Brujula 2014
November, Mendoza...