Education level on space technologies and applications at schools in Sri Lanka

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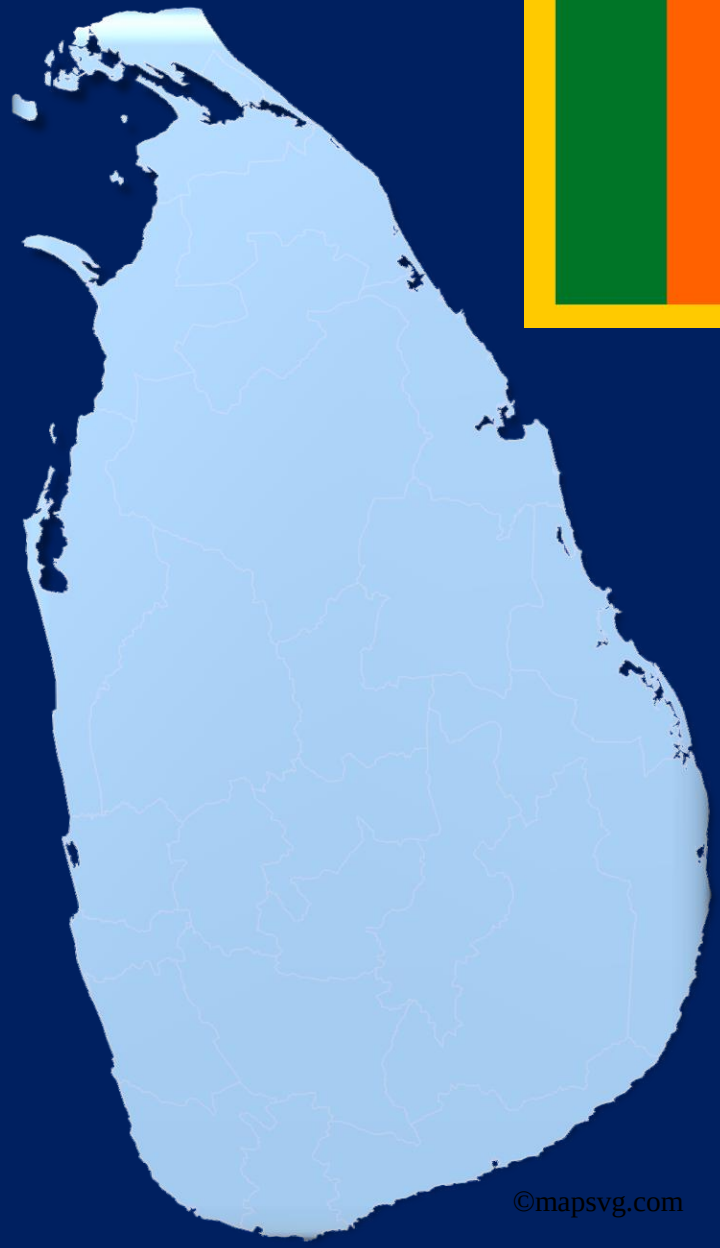
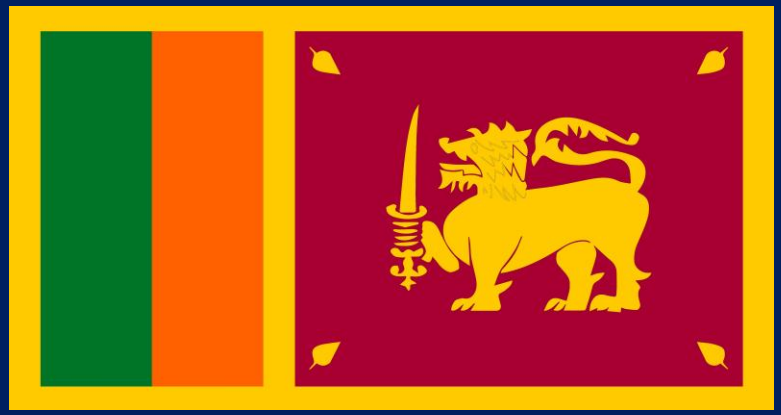
01st of October at UN/IAF Workshop 2023, Baku , Azerbaijan

Introduction

Brief Introduction





Formerly known as Ceylon

Area : 65,610 km²
Maximum length : 432 km
Maximum width : 224 km
Population : Approx. 22 million
Literacy rate: Approx. 92% (2020)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Photography
BY
DUSHANI AYESHA


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Education System in Sri Lanka

Types of schools

1. Government schools

- National Schools
  - Better facilities than provincial schools
- Provincial Schools

2. Non- government schools

- International Schools
- Private Schools

Overall better facilities and financial conditions

Other than these there are temple schools and special schools.

Education system at schools in Sri Lanka

- Primary
  - Grade 1 *to* Grade 5 (Scholarship Examination)

- Secondary
  - Grade 6 *to* Grade 11 (G.C.E Ordinary Level Examination)

- Collegiate
  - Grade 12 *to* Grade 13 (G.C.E Advanced Level Examination)

Education Level on Space Technologies

Results are based on a study I conducted

National Schools

Provincial Schools

International Schools

Selected Areas

Horowpathana
Government school

Matale
Government school

Ampara
Government school

Colombo and subs
Government and non-government schools

Thawalama
Government school

Current education efforts in prompting space

- Chapter on science subject (grade 8) covering topics about solar system, eclipses, exploring the universe, artificial satellites, star constellations [1]
- Astronomy societies in schools
- Astronomy and Astrophysics Olympiad [2]
- Water rocket competitions

Activities and programs in schools related to space

Some schools have,

Astronomical Societies

Image by brgfx on Freepik https://www.freepik.com/free-vector/happy-kids-observe-night-sky-with-telescope_27175518.htm#query=astronomical%20clubs&position=2&from_view=search&track=ais

Main areas covered by astronomical societies

- Astrophysics
- Cosmology
- Rocketry

Activities by astronomical societies

- Knowledge is being transferred by senior students to junior students
- Some of the leading schools gives lectures to other schools on request
- Night star gazing camps
- Guest lectures
- Small lessons on rocketry
- Some schools have water rocket activities
- Training for astronomy Olympiad
- Interschool astronomy quiz competition
- Astrophotography competitions

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Comparison between government schools and non-government schools on space education

- Government schools had better performance in junior astronomy Olympiad 2022 [2]
- Government schools had better performance in astrophysics and astronomy Olympiad in 2019 and 2022 [2]
- Number of participants from government schools were higher [Year 2022]

Question

Are the students interested on learning about space technologies?

YES

https://www.freepik.com/premium-photo/service-taxi-white-space-isolated-3d-illustration_12945628.htm#query=space%20technologies%20and%20applications&position=19&from_view=search&track=ais

The reasons why, they are interested

Students think it will be great to have technology owned by our own country to predict the natural disasters
As a hobby
To learn about space objects
Interest towards the rockets
Interest about satellite stabilization
Passionate about how the scientist determine the distances ,different properties about planets, the technology behind
To develop equipment /technologies to observe the space
How we were able to come to these conclusions about universe, the technology behind

Sources used to gain the knowledge

YouTube - Main source

WhatsApp groups for knowledge sharing

Research papers – Google scholar

School library and public libraries

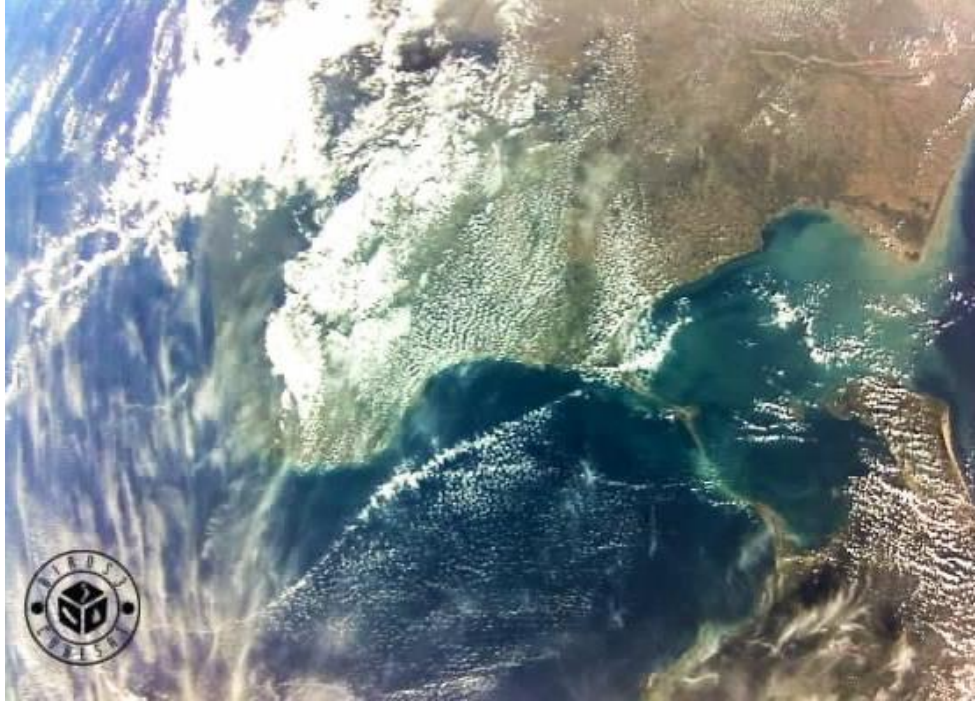
Wikipedia, Britannica and references websites

Challenges according to the students on learning space technologies

- There is no teacher specialized about space systems at schools
- There is no university to study about space systems after leaving the school (Some universities have modules for astrophysics)
- There is no space industry, so interest of the students towards the space systems reduce as they grow
- Most of the books are in English
- In rural areas, the knowledge on space is extremely low

Effects after Raavana-1

Our first satellite was in the orbit.



Deployed to the orbit on : 2019 June 17

Re-entered in : 2021 October

Effects after Raavana-1


A12 THURSDAY, MARCH 7, 2019 DailyMirror

NEWS FEATURES

By Shevin Fernandopulle

The world is very keen on adventuring into Space and innovating inventions to fly into space. Although, it sounds alien to Sri Lanka, it would be no longer something strange to Sri Lankans as the islanders' first research satellite RAAVANA-1 built by two Sri Lankan youth is set to launch into space this April, marking our entrance into the space age.

SL TO LAUNCH FIRST-EVER SATELLITE IN APRIL

Historic landmark in Sri Lanka's space journey

RAAVANA-1, which is a cube-sized nanature satellite, was built by Tharindu Dayarathne an Electrical and Electronics engineer of the University of Peradeniya and Research engineer at the Arthur C. Clarke Institute for Modern Technologies along with Dulani Chamika, a Mechatronics engineer from the same institute.

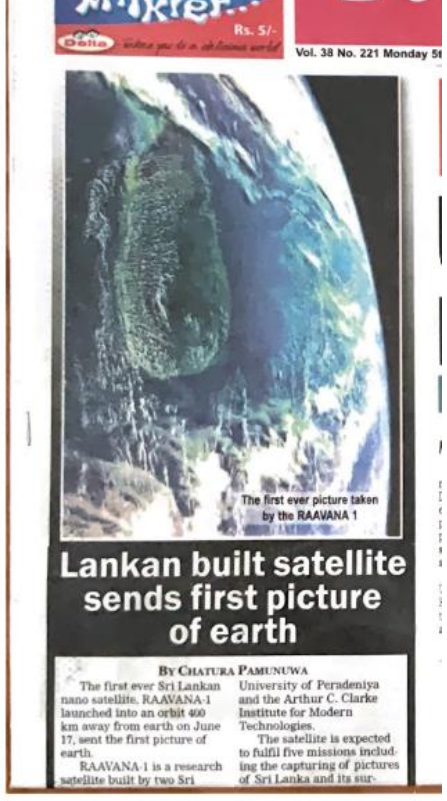
Arthur C. Clarke Institute for Modern Technologies is the only institute in Sri Lanka, dealing in the area of 'Space Technology'.

This project is carried out under the third Joint Global Multi-Nation Birds Satellite project acronym as "Birds project" which is a cross-border interdisciplinary satellite project for non-space faring countries initiated by Japan.

Any device or product which needs space environment testing (ex. temperature conditions, radiation, orientations etc.) is sent to the space using a Nano satellite spacecraft

HOW RAAVANA-1 BECAME A REALITY

WHAT THE INVENTORS HAVE TO SAY


Vol. 38 No. 221 Monday

The first ever picture taken by the RAAVANA 1

Lankan built satellite sends first picture of earth

By Chatura Pamunuwa

The first ever Sri Lankan nano satellite, RAAVANA-1 launched into an orbit 400 km away from earth on June 17, sent the first picture of earth.

RAAVANA-1 is a research satellite built by two Sri Lankan students- University of Peradeniya and the Arthur C. Clarke Institute for Modern Technologies.

The satellite is expected to fulfil five missions including the capturing of pictures of Sri Lanka and its sur-


Wednesday, May 08, 2019

Daily News Vidya

RAAVANA I

The Raavana 1 satellite, set up with the supervision of Arthur C Clerk institute for Modern Technology under the purview of the Ministry of Science Technology and Research in Sri Lanka, was launched at 02:16 a.m. of the 18th April 2019. This was created by two Sri Lankan Engineers, for the first time of Sri Lankan history. Raavana 1 satellite has been launched by the NASA-based International Space Station in America.

Continued on Page 02...

Another step forward by the Arthur C Clarke Institute for Modern Technologies under the purview of the Ministry of Science, Technology and Research.

What is the Artificial Intelligence?

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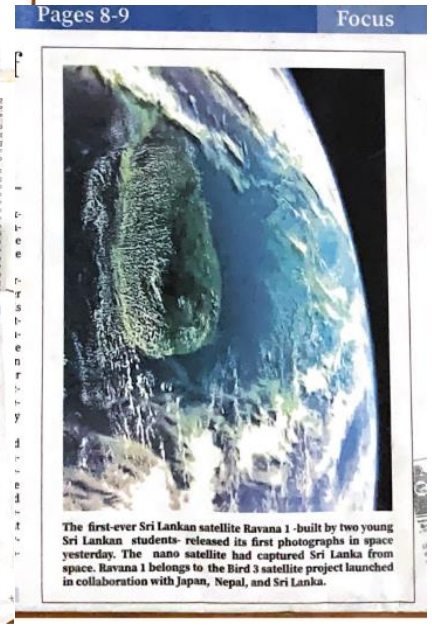
Pages 8-9 Focus

The first-ever Sri Lankan satellite Ravana 1 -built by two young Sri Lankan students- released its first photographs in space yesterday. The nano satellite had captured Sri Lanka from space. Ravana 1 belongs to the Bird 3 satellite project launched in collaboration with Japan, Nepal, and Sri Lanka.

www.adaderana.lk › news › sri-lankas-first-satellite-raava...

Sri Lanka's first satellite RAAVANA-1 reaches ISS - Ada Derana

RAAVANA-1 is a research satellite built by two Sri Lankan ... months of free-flight testing of **news** systems before reentering Earth's ...

Ada Derana · Ada Derana · Apr 19, 2019

www.youtube.com › watch

RAAVANA-1: first ever Sri Lankan satellite launched (English)

RAAVANA-1: first ever Sri Lankan satellite launched (English) Watch More Video - http://goo.gl/2QWjSA #adaderana #derananews #tvderana.

YouTube · Ada Derana · Apr 19, 2019

Effects after Raavana-1

- Interest about learning space technologies increased
- Students tried engaging in space related activities
- Air bearing tables, helmholtz coil as final year projects
- Curiosity towards CubeSats satellites increased

Voluntary Activities

- I was able to do several guest lectures focusing **space technologies** at several schools.
- Current activities were focused on schools in Colombo district
- Next, the focus will be shifted to the schools outside Colombo.


THANK YOU
If there is no way, create one

References

1. https://www.ethaksalawa.moe.gov.lk/moodle/mod/resource/view.php?id=20042 (accessed on 2023.08.10)
2. https://ipsl.lk/astronomy-olympiad/(accessed on 2023.09.07)