THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

6th Wernher von Braun Memorial Symposium
October 7 – 10, 2013

American Astronautical Society

AMBIEnT: Affordable Microsatellite Based Internet Access and Environmental Monitoring

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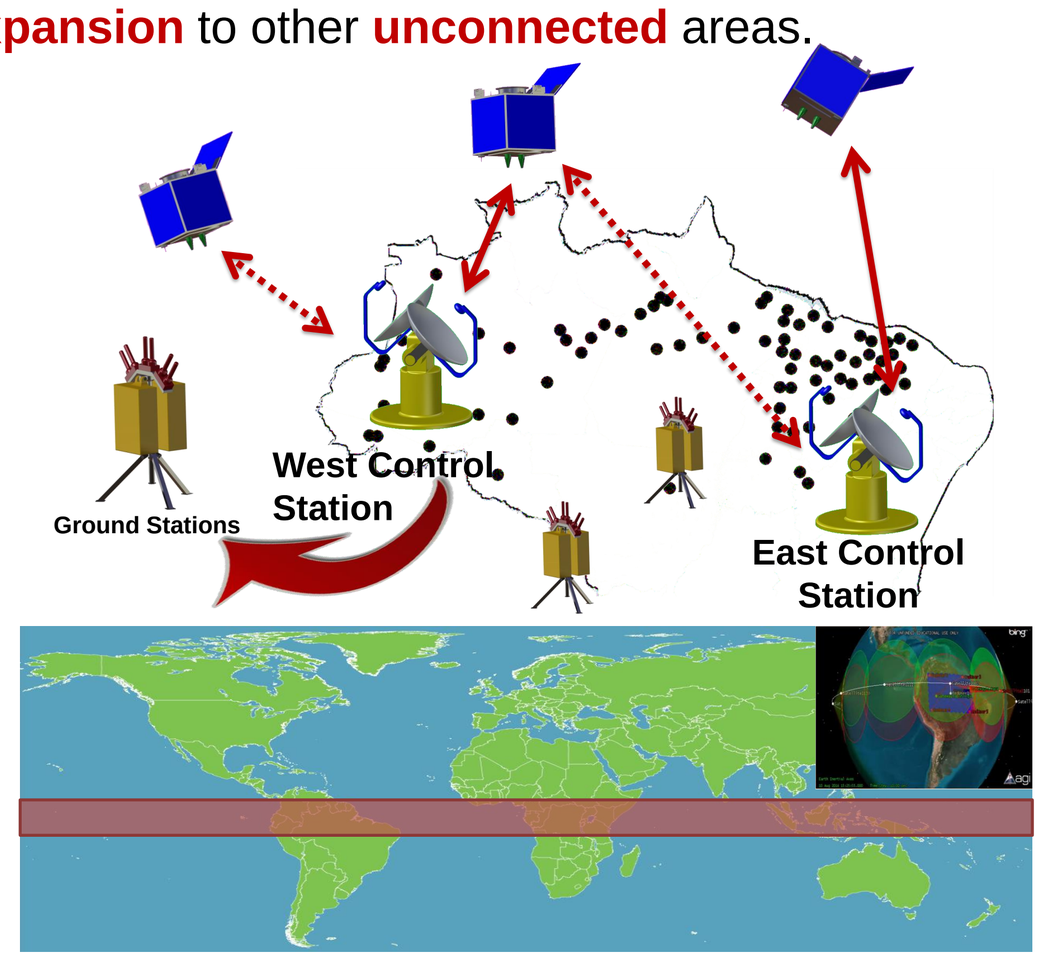
Overview

AMBIEnT is a conceptual design study completed as part of the International Space University's Space Studies Program for 2013. The challenge proposed was completed by 33 people from 19 different countries. AMBIEnT's mission is to offer **sustainable** and **affordable internet access** and **environmental monitoring** via **microsatellites** by 2018, as a means to provide **socio-economic benefits** to the **Brazilian Amazon** region with a future capability for **global expansion** to other **unconnected** areas.

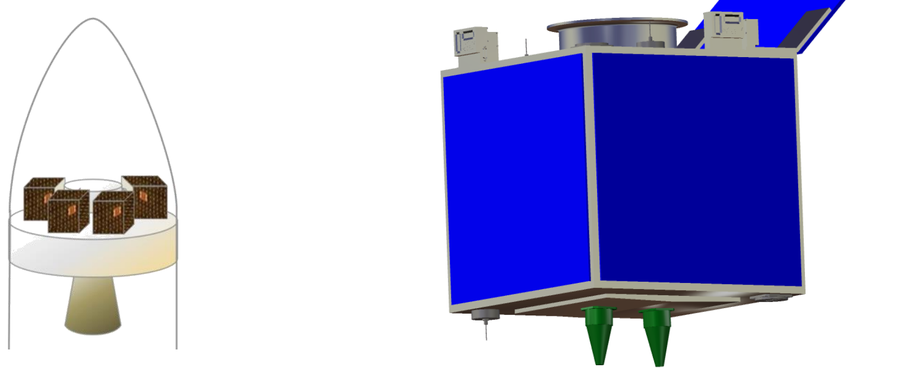


Design

Space Segment:
- Microsatellite constellation system of 14 100kg satellites in a 600km equatorial orbit
- SSTL-100 Bus (7 year lifetime design with 7 missions successfully flown)
- 2 helix antennas for X-Band communication

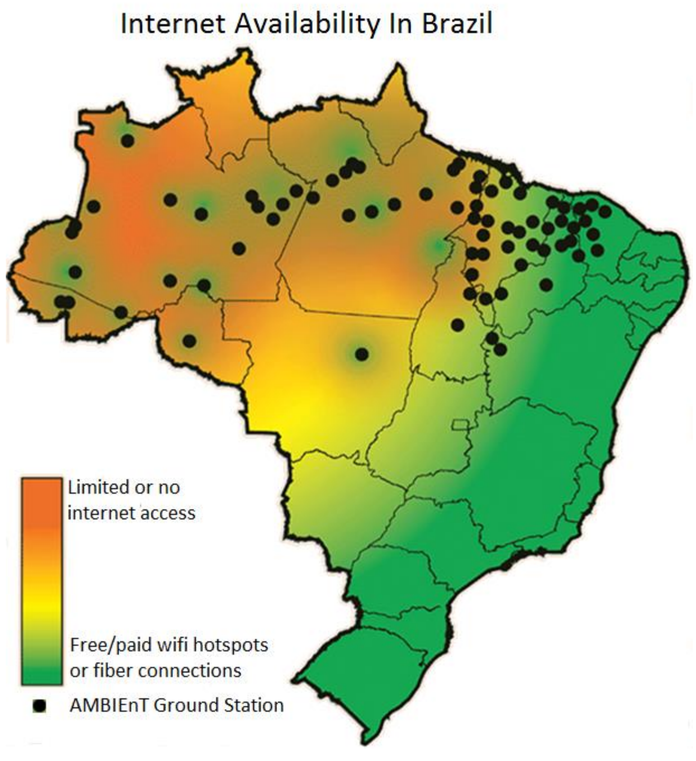
Ground Segment:
- 2 internet gateway control stations: 3m receiving antenna and signal distribution system
- 1161 ground stations with helical antennas
- Sensorsdrones attached to ground stations which relay data to AMBIEnT processing center

User Segment:
- 129 Municipalities distributing tele-education centers in schools/libraries
- 50 public internet terminals available for each municipality
- Telemedicine terminal provides sensor package linking patients with doctors around Brazil



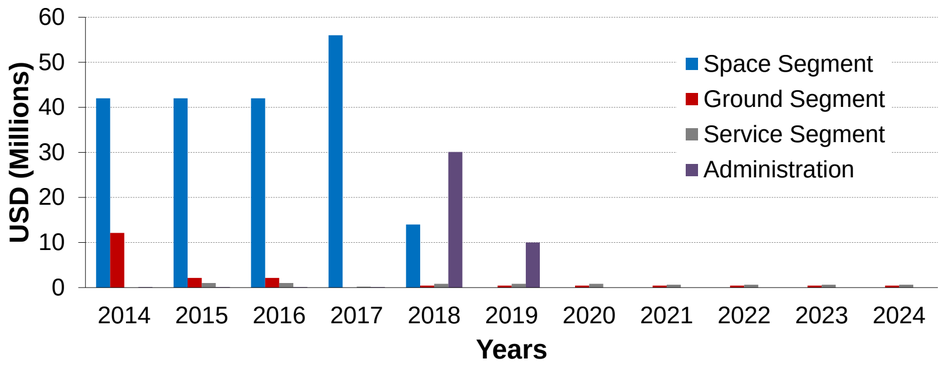
Impact

AMBIEnT will provide basic internet, tele-education and telemedicine services to the 26 Million unconnected people of the Brazilian Amazon. Its ground based sensor package will empower the people to combat illegal deforestation as a community. AMBIEnT will be provided at no cost to the end users, but will be funded with financial assistance from Carbon Offsetting collaboration that will fund program sustainability.
These tools will open new markets to the people, reducing the digital divide in Brazil.



Implementation

AMBIEnT will be operational for a minimum of 7 years, with a goal of a 10 year program mission. Total program cost is estimated at $263M.



Milestones:
- 2015 Start Production
- 2016 Ground stations placement begins
- 2017 First of four launch begins with on-orbit testing
- 2018 Constellation begins operations
- 2019-2024 Continued training of key personnel

Acknowledgements

The author would like to acknowledge Dr. Ken Kobayashi for his efforts in editing this poster, and the 2013 International Space Studies Program and staff in providing the problem of interest

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