

Brazil Grand Challenges Scholar Program workshop



FEDERAL UNIVERSITY OF UBERLÂNDIA

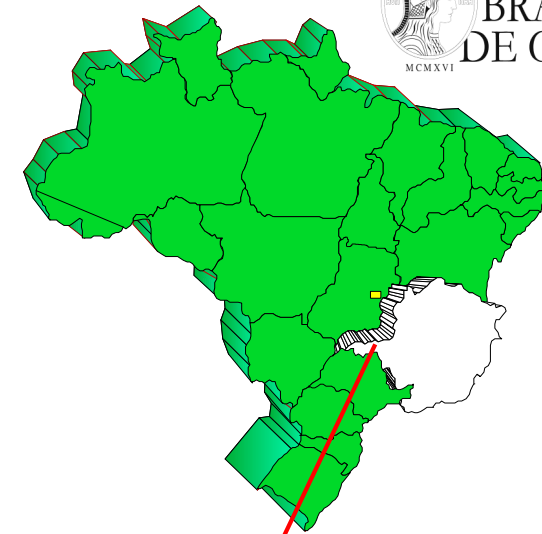
Valder Steffen Jr

Where is located Uberlândia?

In the state of Minas Gerais. It is a medium-size city (700,000 inhabitants)



UFU – Uberlândia – MG - Brazil



WHO WE ARE

Federal University of Uberlândia

- Founded in 1969; Incorporated to the Brazilian federal university system in 1978
- 7 Campuses
- 32 Academic units
- 9 Libraries
- 3 Hospitals (Clinical, Dentistry, Veterinarian)
- 81 Undergraduate Courses
- 73 Graduate Programs
- 2068 Faculty members
- 29.274 Students (about 5 thousand engineering students)
- Total area
- 22.421.609,99 m²



PROFILE EXPECTED FOR THE 21ST CENTURY ENGINEERS



1. Critical thinking.

Ability to analyze and evaluate available sources of information.

2. Creativity.

Ability to imagine, participate, find their own expression and motivation in the engineering work.

3. Cooperation.

It is not just about working in groups, but taking into account political aspects, find common interests, create solidarity networks (e.g issues of inequality, climate change, migratory flows, etc.).



4. Understand and make responsible use of state-of-the-art technological tools: data, algorithms, social network.

5. Development of emotional intelligence.

Capacity of maintaining self equilibrium and well-being of the group. Understand how emotions work and how to construct empathy.

6. To be independent and make responsible choices.

Face the world and professional challenges with confidence and courage. Believe in a better world for the society...and work for it!

7. Be ready to work in the international context.

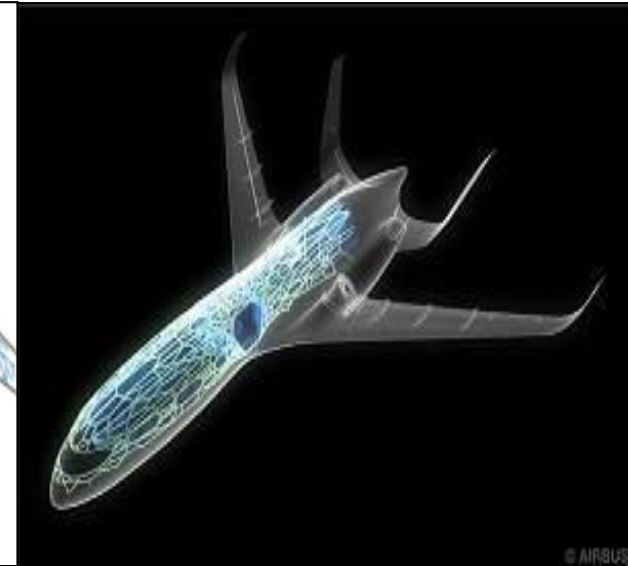
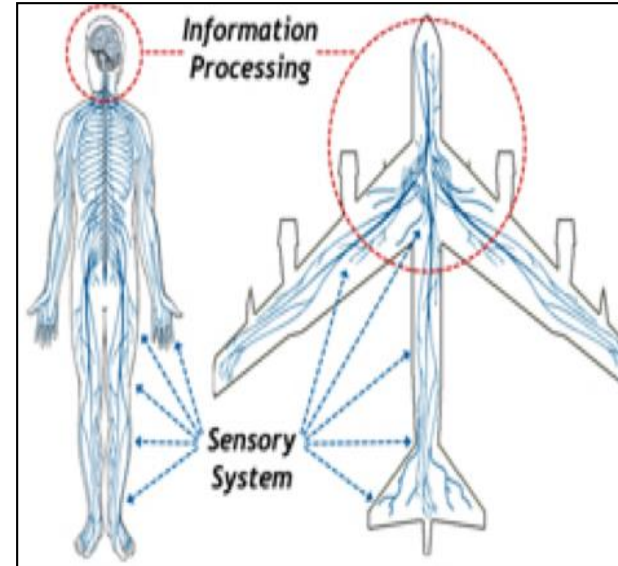
Ex. Simultaneous engineering (Engineering projects involving various partners along the world)



SUCCESSFUL EXAMPLES FROM UFU

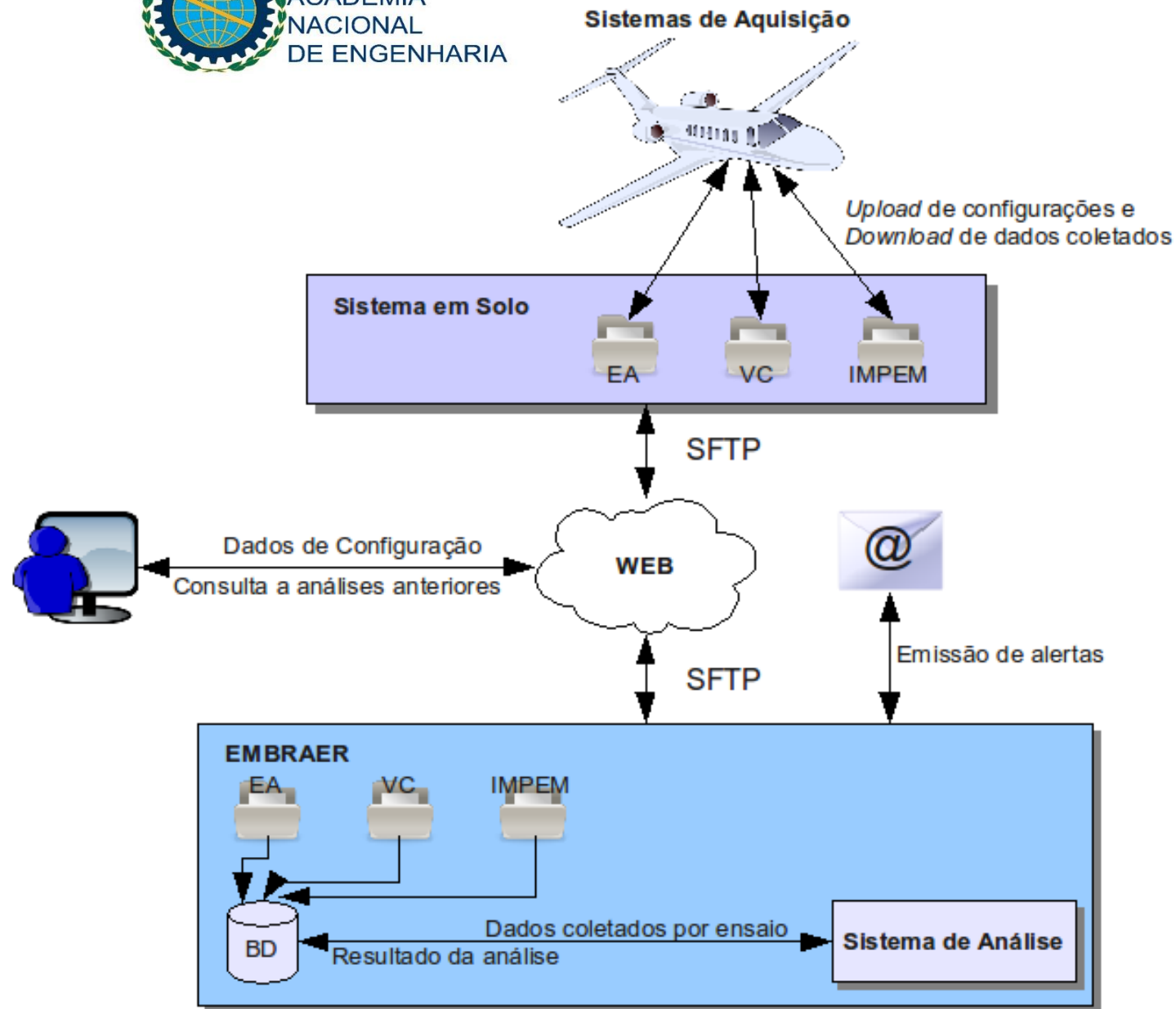


SHM System



(Adapted from: Aerospace manufacturing website)







US 20150168353A1

(19) **United States**(12) **Patent Application Publication**
Gallo et al.(10) **Pub. No.: US 2015/0168353 A1**
(43) **Pub. Date: Jun. 18, 2015**(54) **STRUCTURAL HEALTH MONITORING
SYSTEM EMPLOYING
ELECTROMECHANICAL IMPEDANCE
TECHNOLOGY**(22) Filed: **Dec. 16, 2013****Publication Classification**(71) Applicants: **Universidade Federal de Uberlandia,**
Uberlandia (BR); **Embraer S.A.,** Sao
Jose Dos Campos (BR)(51) **Int. Cl.**
G01N 29/09 (2006.01)
G01N 29/44 (2006.01)
G01N 29/32 (2006.01)
G01M 17/007 (2006.01)(72) Inventors: **Carlos Alberto Gallo,** Uberlandia (BR);
Domingos Alves Rade, Uberlandia
(BR); **Elias Bitencourt Teodoro,**
Uberlandia (BR); **Luiz Gustavo**
Martins, Uberlandia (BR); **Marcos**
Morais de Souza, Uberlandia (BR);
Roberto Mendes Finzi Neto,
Uberlandia (BR); **Valder Steffen, JR.,**
Uberlandia (BR); **Camilia Gianini**
Golsalez, Sao Jose Dos Campos (BR);
Glauro Humberto Gomes, Sao Jose
Dos Campos (BR); **Fernando Dotta,**
Sao Jose Dos Campos (BR); **Mauricio**(52) **U.S. Cl.**
CPC **G01N 29/09** (2013.01); **G01M 17/007**
(2013.01); **G01N 29/4472** (2013.01); **G01N**
29/32 (2013.01); **G01N 2291/018** (2013.01);
G01N 2291/023 (2013.01); **G01N 2291/0289**
(2013.01)(57) **ABSTRACT**

A method to acquire the structural health state of an aircraft mechanical component performs measurements at each frequency point of interest by using a network of transducers and

THANK YOU!



Brazil Grand Challenges Scholar Program workshop



FEDERAL UNIVERSITY OF UBERLÂNDIA

Valder Steffen Jr

vsteffen@ufu.br
