



# Plantas Nómadas

Is a research project. Result of the actual situation of some rivers that are contaminated by large amounts of industrial and domestic waste which turns the water into a focal point of infection affecting communities and ecosystems.

The project not only points at, it also seeks to reflect on how we manage the waste we generate and how we can change them in nutrients, energy in order to improve the quality of the water in rivers.

This research project takes form in a new species, that operates as an antibody, to maintain an ecosystem in balance. It consists in an autonomous robot that lives in symbiosis with microorganisms and native plants. This species has the ability to survive on the banks of polluted rivers, built to transform waste into electricity, oxygen, clean water, nutrients and life.

The metabolic cycle of the Nomadic Plant starts when it finds contaminated water. It sucks the liquid and carry it to a set of microbial fuel cells. These cells, accelerate the biodegradation processes to clean the water that feeds the wetlands, where plants grow along with bacteria, providing power to the electronic system. The circuits monitor and maintain the ecosystem in balance, while another group of photovoltaic cells feed the locomotors system of the robot. Once it accumulates the energy, the body awakes to move in search of food. When pollution levels are higher in the water, the Nomadic Plant transforms it in sound for express itself.



*Nomadic Plant, Santiago River* (Documentary).

Video that shows the conditions under which is currently the Rio Santiago at El Salto and Juanacatlán, in the State of Jalisco, Mexico. Along this river there are communities who settled on the banks and now they are harassed by the infection of the water. Under these conditions, the plant Wanderer relates to the environment and uses the nutrients in the pollutants to transform them into energy and life.



*frame from Nomadic Plant, Santiago River.*

Documentary: [www.plantasnomadas.com](http://www.plantasnomadas.com)



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## **Credits:**

### **Technological development**

#### **Electronics Design**

- Javier Álvarez
- Ariel Guzik
- Salvador Chávez Regalado
- Óscar Gustavo Bernabé

#### **Programming control system**

- Javier Alvarez

#### **Mechanical Design**

- Gilberto Esparza

#### **structural Design**

- Santiago Itzcóatl
- Elijah Ledesma

#### **Investigation of bacteria in the river Lerma**

- Biologist Juan Angel Mejia

#### **Development of microbial fuel cells**

Dr. German Buitrón UNAM

Dr. Jaime Perez Trevilla

INQUICA Group, Polytechnic University of Cartagena:

- Carlos Godínez Seoane
- Sergio Sanchez Segado
- Antonia Pérez de los Ríos
- Francisco Hernandez Fernandez
- Irene Lopez Cutillas
- Amor Larrosa Guerrero
- Luis Javier Lozano-Blanco
- Anahi Ginestá Anzola

#### **Articulated part machining**

- Arturo Hijuelos. Hiart
- Rodrigo Ruiz González

#### **Counseling**

- Dr. Juan Angel Mejia campus University of Guanajuato Irapuato - Salamanca
- Dr. Alejandro Rodriguez LA, CINVESTAV, National Polytechnic Institute
- Dr. Carlos Godínez. INQUICA
- Dr. Alessandro Carmona Martinez, Technische Universität Braunschweig.
- Mr. Rodrigo Ruiz González. kobolds Technologies

#### **Coordination of research at the University of Guanajuato Irapuato campus - Salamanca**

Dr. Reynaldo Thompson

#### **Documentary Rio Santiago**

##### **Camera and Editing**

- Andres Padilla Domene

##### **Sound and music**

- Ariel Guzik

##### **Microscopic photography**

- Raul Gonzalez
- Gilberto Esparza

### **Collaboration in El Salto, Jalisco**

Grouping a leap of Life, AC

- Graciela Gonzalez
- Enrique Rivera

### **Documentary Rio Lerma**

#### **Camera and editing**

Gilberto Esparza

### **Collaboration in Salamanca, Guanajuato**

Armando Moreno

Juan Angel Megia

#### **web page**

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Ricardo González Barbosa

Dan Levi Rodríguez García

Lupita Rodríguez

Iván Puig

María Rivases

Marcela Armas

Arcángel Constantini

Iazua Larios

Miriam Rosas

Brenda Eunice Martínez

Constanza Moreno

Caren Razo

Kike Hernández

Israel López

Fátima Edith Ramírez

Carmen Cebreros

Andrea Pash

Juan Alcocer

Silvia Albarroa

Karina Juárez

Dr. Delfino Francia

Mario Alberto Reyes