Objective:

To simulate an iGEM competition, in which a biological dispositive that contributes to solve a problem of any kind of nature using BioBricks parts obtained through the rally will be designed. (Not necessary to use all the parts.)

Explanation:

A brief explanation will be given of how BioBricks works. The list of BioBricks contains two types of genes: regulatory and functional. All work requires energy, and if it imposes a new function to an organism, then it will require more energy.

The deviation of the use of energy of the new function can seriously alter its metabolism and affects its growth. To reduce that effect, we can make use of regulatory genes. These allow turning on or turning off a gene in response to an environmental stimulus, saving energy for the body.

An example will be provided with both types of genes to clarify its role as well as the objective of the exercise:

Problem:

Air pollution with carbon dioxide (CO_2). Identify what is required to approach the problem:

1. To arrive to the atmosphere

2. To remove CO2

3. To take into account the energy expenditure

Example:

DRAW LARRY WITH THE FOLLOWING GENES: CO2A, CO2R, GVP, OZ, UVR

DRAW A FLOW CHART: FLY [GVP] -> to detect CO2 [CO2R] ->

To remove CO2 [CO2A] -> To detect holes in the ozone layer [UVR] -> To produce Ozone [OZ].

Proposal:

Larry will be able to remove CO2 (CO2A) and activate that function only in presence of the contaminant (CO2R), saving energy. Also produce gas (GVP), which will allow it to ascend and reach the contaminated areas of the atmosphere. Finally (as an additional feature), our bacteria will may produce ozone (OZ) when it detects high levels of UV radiation (UVR), since it will be an indicative of a hole in the ozone layer.