cooperación alemana
DEUTSCHE ZUSAMMENARBEIT

Implementada por:

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Solar Bike Rack Project

Program for Renewable Energies (PEERR II)

Background

The transport sector emits 37% of greenhouse gases, while the energy sector accounts for 13% of the negative climate impact of emissions. Due to this, the Renewable Energy Program (PEERR II) conducted a pilot project using an electric bicycle as an efficient transport means that produces zero carbon emissions.

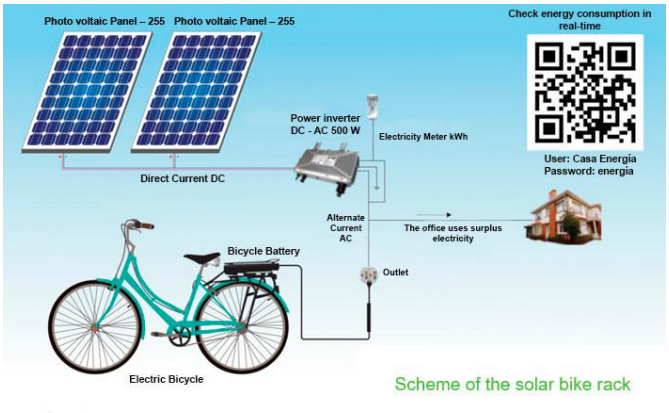
On the one hand, the pedal-assisted bicycle is an excellent means of transport that is friendly to the environment because it reduces air pollution and carbon emissions. In addition, this traditional bike contributes to physical health and looks after the economy. However, due to La Paz city's topography, this classic pedal bike presents limitations as the slopy *paceño* streets demand excellent physical condition from their users.

On the other hand, the electric bicycle can be easily driven in hilly cities such as La Paz. This electric transport can travel to any destination up to 15 km without exerting any physical effort. Electric bikes have a 250 W electric motor, a battery, and a pedaling sensor.

Power reaches the engine through the battery, which can be recharged at the electricity mains. A clean project with solar energy is perfectly complemented by using photovoltaic panels to charge electric bikes' batteries.

Description

There is an electrical bike parking lot at *Casa Sinergia*. Two photovoltaic panels connected in series are located on the parking lot roof. An inverter supplying alternating current to a circuit of outlets is available to charge the bikes' batteries. Surplus energy from the photovoltaic panels covers some of *Casa Sinergia's* energy needs.



Scheme of the solar bike rack

Contest

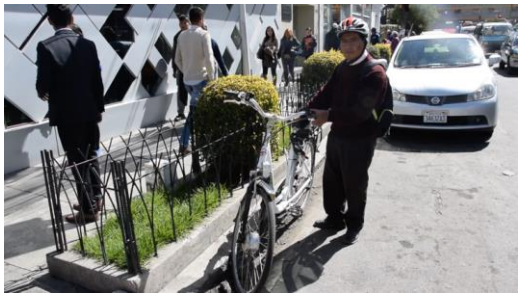
In 2018, *Casa Sinergia* participated and won the "Sustainability Contest" competition with its *Bicicletario Solar* project. In this contest, staff members proposed sustainability initiatives. Thus, various suggestions on how sustainability can be part of our daily routine were evaluated.

This initiative reduced the office's CO_2 emissions by 955 kilograms in one year, equivalent to a one-way flight from Frankfurt to Cairo.

Outcomes & Impacts

Using solar bicycles is very helpful when multitasking, especially for courier services.

Also, a platform for electric bicycle loan registration has been implemented to quantify the reduction of carbon emissions each type of solar bike avoids emitting. This application is the first version of BS Tracking developed for mobile services based on an Android operating system.



This application offers the option to register the loan of the electric bicycle and measure the route in kilometers in two sections (round trip) in real-time.

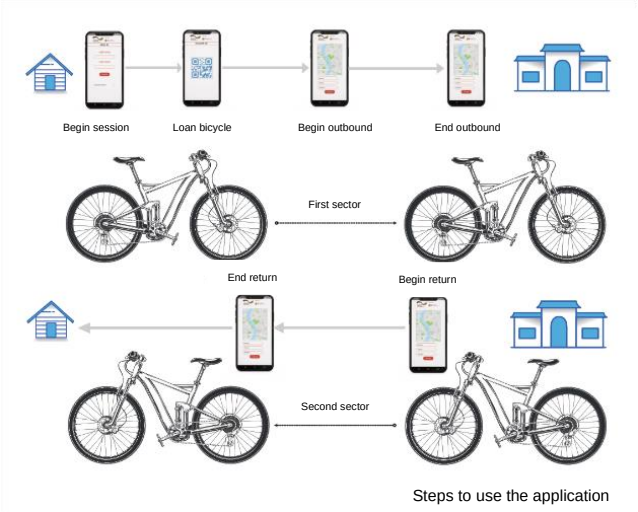
Furthermore, BS Tracking uses the mobile device's camera and GPS to run the application as follows:

1. The mobile device camera can register the QR code generated for each bicycle.

2. The mobile device GPS conducts the geolocation in real-time to generate the outbound and return kilometers report.

3. This application evaluates the carbon emissions that had not been emitted for choosing this means of transport.

Scheme for using the mobile application



Steps to use the application

Solar Bicycles in pandemic times

In 2020, PEERR II loaned two electric bicycles to Épico's vegetarian restaurant during the pandemic. Due to the quarantine restriction in La Paz, this restaurant depended on home delivery services. However, using the electric bikes, Épico could continue working through challenging times.

To access the Solar Bike Rack video on the Sustainable contest site, scan the QR:

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