



# RAPID ELECTRIC VEHICLE CHARGER

## The Problem

The number of electric vehicles in the Philippines is steadily increasing with support from different government sectors and non-governmental organizations. However, imported rapid vehicle chargers are expensive and most of the electric tricycles available in the Philippines needs 6 to 8 hour charging time to fully charge their batteries.

## The Solution

Support sustainable energy use by the transport sector by developing a more economical rapid vehicle charger. CharM is a fast charging system that can fully charge electric tricycles in 30 minutes. It has a battery management system that can monitor the voltage and temperature of the battery when plug-in to the charger and will help ensure better battery product security and safety.

## The Market

- E-Trike owners
- E-Jeep owners
- Other electric vehicle owners

The CharM charger was initially field tested in Mandaluyong City. Two units of E-trikes was field tested on actual driving conditions and even the Land Transportation Office also tested the E-Trikes units and showed satisfactory reports. Initial trials showed that the charger was already indicating that the battery is full only after 20 minutes.



There is an ongoing market validation study in Cauayan, Isabela wherein two units of CharM chargers were stationed at the Isabela State University. The E-trikes will be running within the Poblacion area.

## The Competitive Advantage

Parameter	Electric Tricycle		Gasoline-fueled Tricycles
	Rapid Charging	Slow Charging	
# of Passengers	4-6	4-6	3-4
Ave. Range/Day	*90 km	**40 km	90 km
Ave. Power / Fuel Consumption/Day	PhP 80	PhP 50	PhP 250
Charging / Fuel Cost	PhP11/kWh	***PhP11/kWh	*PhP40/L
PhP / kilometer	PhP 0.89/km	PhP 1.25/km	PhP 2.80/km

\* Cauayan City, Isabela ETrike CharM Project Data 2017  
 \*\* Mandaluyong City ETrike Project Data 2014  
 \*\*\* Based on Meralco price Matrix for electricity charge per kWh, 2016  
 \* Gasoline price based on the average price of fuel for the 2<sup>nd</sup> half of 2016

- Lower cost than internationally developed rapid chargers
- Maintenance is readily available from developers and/or manufacturers
- Shorter lead time than imported alternatives

## What We Need

We need licensees for the manufacture or operation of CharM chargers.

### Collaborators:



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