

## Project summary

Arara is a battery-free, wheel-mounted bike lighting system that helps improve rider visibility and safety, reducing the risk of accidents and deaths. Which are mostly concentrated between 18 and 21 hours, coinciding with the decrease in natural light and are <sup>1</sup> attributable in 70% of cases in the absence of lateral visibility. <sup>2</sup>.

The system works by magnetic induction for power generation, so it does not require the use of batteries, reducing the costs and pollution associated with the latter, widely used in traditional systems. In addition, its design, allows to adapt to most bicycle models, and makes it easily recognizable from any angle, especially from the side.

This becomes even more attractive, considering that since 2005 bicycle use in Chile has grown by 20% per <sup>3</sup> year, with a market that bills about US\$ 150 million annually, and whose sale of accessories grows at rates close to 30%.

We have 3D printed prototypes of two versions of lights:

A5, immediate on/off; and A200, which takes 3 to 5 minutes to turn on at the start of the movement, but stays on for more than 2 minutes, very useful for for example one stops at the traffic light.

We are currently working on redefining the assembly and design procedure for neodymium magnet support, in order to simplify the user experience, both during installation and during use.

That's why we're currently working on redesigning the magnet mounting system in 3 versions: frame mounting, rigid fork mounting and suspension fork mounting.

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<sup>1</sup> Conaset, (2018). *Siniestros de tránsito de ocupantes de bicicletas y consecuencias, 2017.*

<sup>2</sup> NHTSA, US Department of Transportation (2018). *Traffic Safety Report, 2017.*

<sup>3</sup> Publímetro, 19 de abril de 2018. *Las alentadoras cifras sobre la presencia de bicicletas en Santiago.*