

## Title

ParkShare: Cyber-Physical Shared Parking System for Macau

## Introduction



Parking is one of the most difficult and dysfunctional parts of modern city life – and that’s no surprise, as it’s barely changed for decades. Most car journeys involve some parking pain with drivers suffering from both uncertainty (availability, prices, restrictions) and inconvenience (full car parks, slow payments, unfair fines) on a daily basis. This project focus on developing a shared parking system named ParkShare to make parking easy. ParkShare takes the ideas of gap and parking to share one parking spot to more than one motorist at a different time. Principally, parking spot owners register their spare parking spots on a website through an app with proposed price and service time, and then drivers bid one appropriate space that meets their needs. Some commercial car parks even public car parks might join to sell and rent their parking spots as a single person. A significant advantage in ParkShare is that new development would require less parking area. This fact alone would cut construction costs. Shrinking the parking area also reduces the amount of new impervious cover which leads to a smaller required detention volume. Less parking and detention volume reduces the amount of land needed to develop the site which also lowers the overall cost. ParkShare inherits the business model of Uberisation (shared economy) which allows peer-to-peer transactions between individuals’ needs and services. It provides adequate parking and reduces excessive land use by optimizing personal resources. It fosters area development and citizens connections. ParkShare will dedicate to solving the parking problem by cracking both sides of the market – making parking easy and efficient for everyone.

**Objectives**

- To learn and practice software engineering for the cyber-physical system.
- To involve the software engineering stages from requirements analysis, system design, implementation, software testing, and deployment.
- To learn and practice DevOps and MicroServices.

**Expected Deliverables**

- ParkShare specifications
- ParkShare prototype (including Cloud and Mobile Apps)

**Targeted number of students**

4 to 5 students as a collaboration team