

# Supply-Demand Matching Platform for On-Demand shared zero-emission services



This metaInnovation's main goal is to deliver a platform that consist of three components: a B2C app interface to allow users to indicate in advance when they want to travel; an B2B app interface for operators and drivers of the on-demand shared e-service, that will allow them to accept/reject demand requests as well as recommend routes to optimise travel and waiting times.



Limassol Living Lab



MaaS Lab



m.kamargianni@maaslab.org



## Data Requirements

- Student home addresses as coordinates
- Student after-school activity descriptions and schedules
- Activities' addresses as coordinates
- Minibus daily availability information and drivers' weekly schedules



## Decisions

- Scheduling of drivers and assignment to available minibuses
- Trip generation and pickup/dropoff scheduling based on routing optimisation component



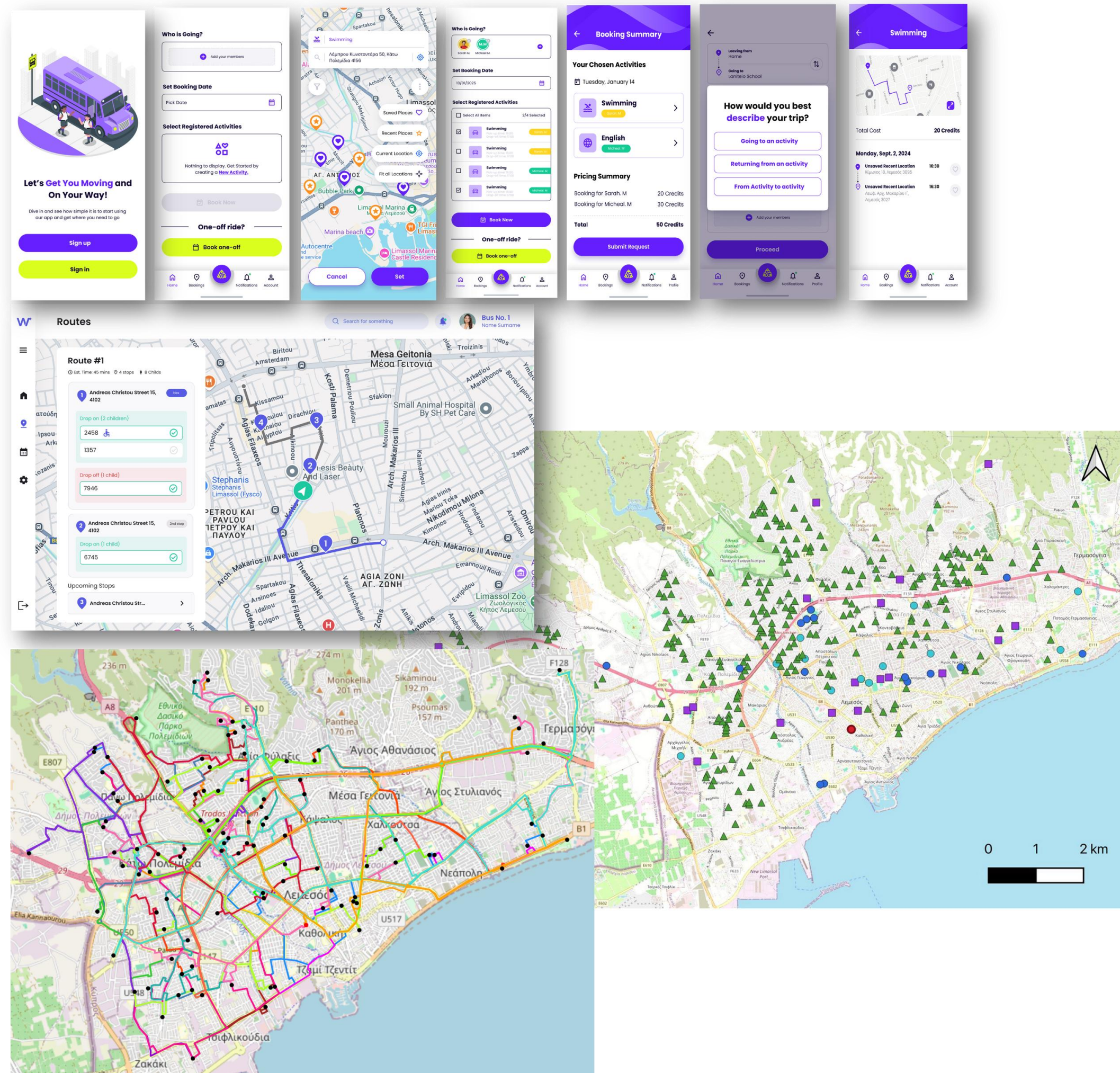
## Methods

- The platform models the routing optimization process as a Vehicle Routing Problem with Pickup and Delivery with Time Windows (VRPPDTW)
- A metaheuristic approach grounded in the Ruin-and-Recreate strategy is used for the VRPPDTW solution



## Scalability

- Applicable to medium-size urban traffic networks
- Has been tested for a synthetic population of up to 300 students for a fixed fleet of 10 Minibuses
- Scalability is dependent on waiting time and ride duration flexibility



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