# (Unfinished) Development Agenda

1. Objectives & Aims

The main goal of this entire endeavour is to design and develop an amphibious autonomous vehicle. Its capabilities would include: Autonomous Path Finding, Obstacle Avoidance, Image Recognition, Amphibious Manoeuvrability, Manual Overtake via a User Interface.

1. Resources Needed:

* Two Batteries (one specifically for the motors, another one for the microcontrollers)
* An Arduino Board
* Two Raspberry Pi microcontrollers\*
* Breadboards
* Four Wheels\*
* Two Motors, One Speedcontrol Unit
* Raspberry Pi Camera
* LIDAR Units
* Digital Tools (Python, C/C++, R.O.S., Qt)

1. Chassis

The design of the chassis must be light, sturdy and water-resistant. The actual size of the vehicle will not be specified, but it should not over-exceed 1:10 (relative to the size of an actual car) in terms of dimensions.

Surface Traversing Design Concept

1. Autonomous Path Finding

The direction and end-point of each autonomous driving task will be predetermined through a virtual map. The obstacles and details of each map will be autogenerated and mapped (predominantly) through the device’s LIDAR system.

Current Method: A\* Mapping (<https://bit.ly/2z6FpFy>)

1. Obstacle Avoidance

The vehicle needs to be capable of the following:

* Map and partially memorize its environment with the LIDAR system
* Detect and recognize signs and unmappable obstacles with the Raspberry Pi Camera system

* Items marked with “ \* ” are to be figured out in further detail later on in the development phase.