New fin fastening design introduces an undiscovered jetboard fin segment

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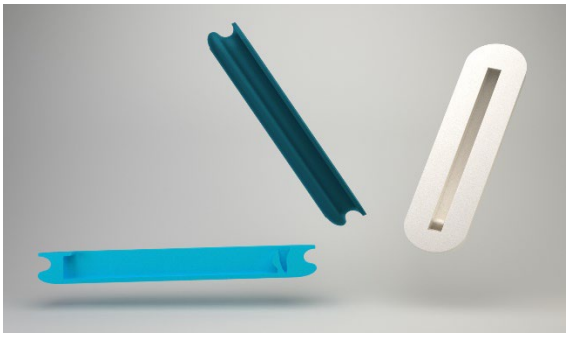
The majority of the current jetboard manufacturers use fins meant for surfboarding. This comes as a result of the most popular fin plug being patented. It requires no tools and the produced fins corresponding to the fin plug are solely designed for surfing. This project has developed a new fin plug meant to be a part of the public domain and allows for tool-less assembly. Subsequently, it allows for fins to be developed originally for jetboarding. The second part of this project focuses on exploring this new segment.

Jetboards are relatively new watercraft products which use a geometry similar to a surfboard's. This is arguably why most steering means are surfboard fins, even on jetboards. The two major differences of a surfboard and jetboard is the absence of waves and the presence of a water jet. Potentially, these facts diminish the reasoning for a surfboard fin to be placed on a jetboard, an incentive for our project to enable companies to develop fins matching their products. Therefore, a process was initiated to bring forth a fin plug concept, circumventing the existing patent and subsequently enabling a jetboard fin segment.

The fin plug developed had as a required need to allow for tool-less attachment and detachment of a fin. To ensure no infringement occurred, the concept generation process progressed in parallel with consultation of an intellectual property attorney. The final concept alludes to prior art, meaning it makes use out of expired patents and hence resemble designs that are a part of the public domain.



The fin plug concept allows for different assembly methods of a jetboard and consists of a simple geometry design. A design which allows for easy manufacturing, maintenance and dimensioning. The concept was chosen through user testing of 3D printed prototypes. In the tests, this concept excelled through its auditive feedback and firm grip. Above all, it enabled the producing of jetboard optimised fins.

The second part of this project focused on the new product segment of jetboard fins. To ensure what experiences are sought-after regarding a new segment, interviews and user tests were conducted to gather as much information as possible. Most data available on fins is referring to surfboarding. Therefore, we transferred surf dynamics amongst other theories onto jetboarding and investigated if they would result in sought-after experiences.

We wanted a method to compare our generated fin concepts and draw conclusions from the tests. This was done through a simulation study of the concepts, resulting in theoretical data that enabled conclusions to be drawn from physical testing. The project presents two suggested fin concepts for jetboarding which use the gathered results as inspiration. We hope that this project can act as a foundation for further exploration and development of the new segment of jetboard fins.