One of the most exciting and inspiring engineering ventures in many years, the Bloodhound Project is the UK’s attempt to build a jet and rocket powered car that will exceed 1,000 miles per hour.

The initial steering wheel design was created by the Bloodhound team using a number of novel design techniques including bio-mimicry, crowd sourcing and drawing on experience from the current land speed record holder Thrust SSC (763 mph, 1997).

Cambridge Design Partnership took these initial designs and focused on optimising for a whole range of considerations, including ergonomics, usability and aesthetics to help give driver Andy Green an optimum driving experience and the best chance of breaking the world record.

CASE STUDY

BLOODHOUND STEERING WHEEL

Ergonomics, usability and styling for steering wheel design of world’s fastest car

We retained the original geometry derived from the clay model of the grip area and repositioned the forward facing button locations to fit within Andy’s thumb pivot points. The new layout now allows a single fluid rotation movement of the thumb to transition from the power grip used when driving into an activation grip required to press buttons. This revised position could save between 0.5 and 3 football pitches of distance during the deceleration phase of each run; time which is vital when preparing the car for its return run.

We incorporated swooping curves across the top and bottom of the steering wheel to add a dynamic aesthetic, ensuring Andy had a clear line of sight to the instrumentation beyond the wheel, so design detailing could help improve conditions further.

The steering wheel was thoroughly reviewed with each design iteration, with actual-size models rapid prototyped in Cambridge Design Partnership’s workshop to allow Andy and the Bloodhound team to handle each one and feedback. The final steering wheel will be manufactured using the latest titanium additive manufacturing technology, which allows for both the physical properties required to ensure structural integrity and the fluid design styling.

“The Bloodhound car will travel a mile every 3.6 seconds, so efficiency is of paramount importance - the smallest design details could mean the difference between success and failure”

Karl Hewson, Usability and Design Engineer, Cambridge Design Partnership