The CycleHub – A Prototype For The Future Of Cycling

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Cycling has come to be one of the most popular sports in the world due to the convenience of travel, fitness and reduced carbon emissions. With it comes the danger of cycling with road vehicles, a dangerous prospect that turns many away from the activity. My engineering project is an attempt to prove that the dangers of road cycling can be reduced, through producing a custom-designed bicycle accessory. The CycleHub incorporates a variety of features, integrated into a single touchscreen control system. Two very bright customizable head and taillights alert road users from the front and rear, while ultraviolet-powered glowing wheels illuminate the bicycle from the sides. A “radio bell” system alerts local road vehicles to the presence of a cyclist by transmitting a 2mW FM radio message, which is the maximum radio transmitter power an unlicensed person in Australia can transmit at. Together these features provide a demonstration of what the future of cycling safety should be. Producing this project involved electronic circuit design, microcontroller programming and graphical user interface design. Whilst assembling, evaluating and incrementally improving three sets of prototypes, various engineering technologies have been used including 3D-Printing, PCB design, and electrical analysis tools. Experts in design and engineering provided feedback and advice regarding the features and behavior of the product. Rather than being presented as a finished commercial product, this project should be understood as a showcase of potentially revolutionary innovation that can be found in the field of personal transport.

Awards Won:

Third Award of $1,000