The VCU Senior Design Quiet Blender group, partnered with Hamilton Beach Brands Inc., plans to execute the task of developing a quiet blender through an accessory design. Instead of generating another of the many models Hamilton Beach Brands Inc. already has, development of a universal ‘Blender Shield’ to fit current models and those thereafter is proposed. The design will wholly encompass the blender assembly diminishing energy levels to below 70 dB and providing a frequency under 5000 Hz. To accomplish this, both passive and active noise cancelling techniques will be utilized. The ‘Blender Shield’ aims to be cost effective while both drastically decreasing sound and saving counter space of the consumer.

Blenders are, by nature, a loud appliance. The ‘Blender Shield’ will use the first application of an electronic active noise cancelling feature in small kitchen appliances. A microphone, speaker, and circuitry will output a wave 180 degrees out of phase of the input noise so that the two will cancel out. To tackle noise output that is not put to rest by the active feature; passive noise cancelling will be implemented throughout the design. Material selection, baffling, clearances, tolerances, and seals are the main focuses in the reduction of noise by passive approach. Underwriters Laboratories (UL) testing will be performed in order to meet quality testing and safety standards.

As consumer desires adapt, so must technology and its advancements. The craving for an intuitively innovative and discreet design has pressured the blender industry to revolutionize the sound issues of their machines. Apartment and close knit housing dwellers avoid the use of noisy appliances in the early morning and late evening. A silent blender would allow for those in close proximity housing to use a blender anytime of the day without affecting other residents. The ‘Blender Shield’ can be extended to a plethora of other small appliances that can fit within its constraints. Strides accomplished in the field of noise cancellation during this project can be applied to many other household appliances where sound is an issue.