The OSU 2012 Mars Rover is designed to aid astronauts as they explore the surface of Mars. It is capable of performing hazardous tasks that would threaten astronaut safety. Crew safety is a top priority when NASA performs any mission in which humans are involved.

The Mars Rover will be equipped with an in-situ soil science instrumentation package to aid the study of martian geology and microbiology. The instrumentation package includes vision systems that can be used by operators to locate and document areas of geological interest. Mainly those that have been formed by water. This is the same technique that NASA uses in selecting suitable mars exploration sites. It is called the “Follow the Water” exploration strategy.

The URC is held in Hanksville Utah because it provides an environment that is a close analog to the one found on the surface of Mars. This necessitates a rugged design that features cooling systems and ingress protection. Without considering the effect of the environment upon the operation of the Mars Rover, we may end up with a Sprit type situation, in which our Mars Rover becomes consumed by the martian dust.

The Mars Rover is a robotic platform that can be expanded upon and improved so that it may operate autonomously. It serves as a basis for the design of an autonomous rover that could be used in unmanned missions to other bodies in space.

Each time we add a new feature to our Mars Rover, build it, and test it in the Utah desert. We are validating space exploration concepts. For example, we have made several iterations of chassis design. Each attempt results in a deeper understanding of the statics and dynamics of our Mars Rovers. With this understanding, we continue to make, document, and share improved designs in order to advance this area of aerospace technology.

It is clear that our efforts do not go un-noticed. There are amature Mars Rover designs appearing in the URC and at universities in other countries that closely resemble our designs. We are also making an impact upon the URC it’s self, making suggestions to increase the emphasis upon engineering and design.