Can you build a…

Make sense out of Mars

Our solution proposes two sensor clusters, giving us two information streams. One looking at the astronauts vital signs and one looking at outside environment.

Monitoring the user during EVA will be done with a blood pressure, temperature, and pulse sensors. Moreover, The astronauts baseline values for these characteristics are known before the mission, letting us use them as an accident detection and prevention system.

For example, if during an EVA mission the users blood pressure rises above 100 BPM, and stays at this level for a prolonged period of time, we will send a distress signal to the base. These by themselves don’t necessarily mean that something is wrong, but with this information, the base can send a check message to the astronaut.

Dust storms are a big problem on Mars.  
With the MEDA dust and wind sensor we will provide the astronauts with valuable information that will allow them to avoid these storms in the first place.

Knowing the wind direction and dust density, we can give them an early warning letting them know to leave the area.

Even with these preventative measures, the user will sometimes find himself in a dust storm. We propose a combination of infrared and ultrasonic cameras, giving the astronaut a heads up display, with valuable information about the environment and other astronauts, which before were rendered invisible by the high density dust.

We tested the ultrasonic view by building a “dust chamber” which simulates a mars dust storm. In both cases the sensor measures the same distance, proving that in theory our idea works.

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