NASA develops Augmented Reality headset for commercial pilots

March 15 2012, by Bob Yirka

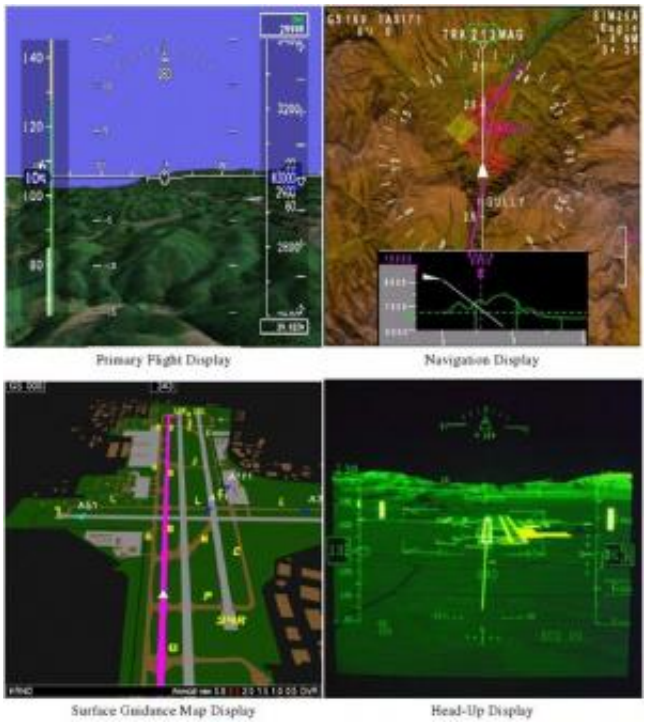
Image: NASA

(PhysOrg.com) -- NASA's Langley Research Center in Virginia has been hard at work developing an Augmented Reality headset for use by commercial pilots to help reduce airline accidents due to poor weather and overcrowding at airports. The results of that effort have now become known as NASA has recently begun searching for a company to make and market the headset which thus far, doesn't have an official name.

Augmented reality is where computer generated images are projected onto a piece of glass that the user looks through. In so doing, the user can see both the real world and the images that are displayed, which are tied

to real world objects. An AR device for commercial pilots for example could display what looks like the actual runway (and tower, other planes, etc.) as a plane approaches for landing in fog. Once on the ground, it could display the runway centerline, as well as interconnecting runways, and the taxi pathway that is supposed to be followed. Because most commercial plane accidents occur during landing, takeoff or when taxiing, more focus has been aimed at providing tools to pilots to help them better see what is going on.

The new AR headset is designed to do just that. It fits over the head, and has one eyepiece that the pilot looks through. It also uses gyroscopes and sensors that read pieces of paper placed on cabin walls to orient itself so that it can correctly interpret which direction the pilot is looking and respond accordingly. It also includes voice recognition software to allow the pilot to communicate with the system orally.



Examples of Synthetic Vision System Displays. Image: NASA

The system is similar in some respects to AR headsets worn by pilots of military jets and helicopters and is an improvement over current headsets used on some commercial flights that overlay information in front of the pilot, but aren't tied to the real world. None of the technology in the headset is new, and in fact all of the information they provide to a pilot is now currently available. The difference is the headset will allow the pilot to keep his or her eyes focused on where the plane is heading, rather than having to look away to study maps or electronic devices.

The AR headset is part of a larger effort by NASA to improve visualization for pilots, called Synthetic Vision. The idea is to eventually move augmented reality imagery to the windshield in a way that is both informative and free of unnecessary clutter that could get in the way of actually flying the plane.

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