

## Battling the Enemy with Big 'ol Balloons

By David R. Butcher

While the military depends more and more on complicated battlefield computer networks, satellite-guided rockets and fighter jets worth hundreds of millions of dollars, projects are now in the works to build a 21st century fighting force from 19th century technology you often see advertising at the beach or floating above football fields: blimps.

These days, the military is depending more and more on complicated battlefield computer networks, satellite-guided rockets and fighter jets worth hundreds of millions of dollars. Yet projects are in the works to build a 21st century fighting force from 19th century technology.



The Pentagon is looking at gas-filled airships — aka dirigibles, or blimps — as it tries to bring back the old-fashioned technology. The Army's Missile Defense Agency is spending tens of millions of dollars to develop what it calls a "high altitude airship." The unmanned, un-tethered, helium-filled, solar-powered craft would stay aloft 60,000 feet above Earth for up to a year while carrying 500 pounds of equipment, according to [ABC News](#) this month.

Tech firm Multimax Inc., for instance, spent hundreds of thousand of dollars on its new project, coming up with a design that looks like an elliptical UFO for a blimp. The company has enlisted help from NASA and scientists at the Wright-Patterson Air Force Base in Ohio, which is analyzing the design, and has requested support from the Pentagon, Department of Homeland Security or the Director of National Intelligence, according to [All Headline News](#).

While corporations are increasingly eyeing airships for civilian communication use, in recent years, blimps and other LTA (lighter than air) craft have been enjoying a renewed surge of interest in DARPA and the Pentagon.

The search for cheap alternatives to satellites and unmanned aerial vehicles (UAVs), or drones, primarily is driving the military's interest in blimps, [The Washington Post](#) recently reported. Some low-flying versions are already in service in [Iraq, Afghanistan and along the U.S.-Mexico border](#). The blimps are known as airships or aerostats (tethered, gas-filled balloons). Not only can they stay up longer than the UAVs popularized by the Iraq war, they are also cheaper than military satellites that can take years to launch, according to supporters of the technology.

An airship is "somewhere around five to seven times less expensive than a manned aircraft per hour, and it would be greatly less expensive than satellites," Col. Jeff Souder, product manager for an Army program, told [The Washington Post](#).

Unfortunately, the technology that caused the military blimp's initial demise still needs improvement, as pitfalls such as enemy fire and bad weather can still bring down the aircraft.

"They make a heck of a big target in the sky, but it's possible they could have communications, missile-detection and other applications," said Michel Merluzeau, director of military airborne systems at research firm Frost & Sullivan Inc. "They still make a very big blip on a radar screen, so you can't put them too close to the enemy."

The market is still small, but analysts say it could develop into a multibillion-dollar industry if the technology can survive the aforementioned pitfalls. In fact, Multimax is one of several defense companies pouncing on the military's renewed interest in using high-flying, unmanned, helium-filled balloons — sometimes tied to the ground with a long rope — as possible weapons.

Earlier this year, Lockheed Martin Maritime Systems & Sensors was [awarded](#) a \$149.2 million U.S. Defense Department contract to design and build a blimp that it says will reach an altitude of 70,000 feet. It will be 14 times larger than the Goodyear blimp commonly seen above stadiums at professional sports events. Named the High Altitude Airship, it may be used for communications and surveillance.

Lockheed Martin developed a manmade fiber stronger than the polyester-type material often used on blimps to guard the system from drastic high-altitude weather changes at 70,000 feet and UV rays.

And enemy fire? The Lockheed fiber is further meant to protect the airship from possible small-arms fire from enemy forces. Ron Browning, Lockheed's director of business development on the program, said, "You could sustain some holes in the bag without any immediate concerns," noting that its low air pressure means that gas escapes slowly. Plans are for the aircraft to operate unmanned for as long as a month. The company originally said it would finish a prototype by the end of this year, but that has been delayed until 2009 or 2010.



Meanwhile, [Raytheon Co.](#) is developing one designed to reach 10,000 feet and be tethered to the ground. Raytheon's system, for which the Pentagon has set aside more than \$1 billion, will be three-fourths the size of a football field and is expected to have its first test flight in 2010. In 2007, after being approached by the Army, Raytheon modified an aerostat it had been developing to fly at about 1,000 feet while tethered. Fitted with sensors and cameras, more than 20 of the company's systems are now in Iraq and Afghanistan.

[Blackwater USA](#), better known as one of the largest security contractors in Iraq, expects to finish its prototype, which aims to reach an altitude of 20,000-30,000 feet, by the end of this year.

While the latest experiments harken back to the military's use of blimps to hunt for submarines on the East and West coasts during World War II, the history of airships traces back to hot-air balloons, which were first flown by the brothers Joseph and Etienne Montgolfier as early as the spring of 1783. While the materials and technology are very different, the principles applied by the earliest 18th century experimenters continue to carry modern sport and weather balloons aloft. Early balloons, however, were not truly navigable.

In 1852, French engineer Henri Giffard was [credited](#) with creating the first navigable full-size airship after he attached a small, steam-powered engine to a huge propeller and flew through the air.

The invention of the gasoline-powered engine in 1896 led to the production of practical airships, and Brazilian engineer Alberto Santos-Dumont was the first to construct and fly a [gasoline-powered airship](#) in 1898.

Dirigibles first saw military duty in World War I, ABC News reports. The Germans and French both used aircrafts as bombers until each side grew better at attacking the other's dirigibles with airplanes. The French, Germans, British and Americans continued to use them as transports and observation platforms.

During World War II, the United States used airships for coastal patrols and to escort naval convoys, directing ship movements and looking out for submarines.

Although only one was ever shot down during that war, the manned airships had fallen out of favor by the early 1960s. The Navy was turning to fast-moving fighter jets.

"You just didn't need this slow, hovering thing anymore," Jack Green of the Naval Historical Center told The Washington Post. "A blimp can't chase a nuclear-powered submarine."

As some firms are finding it difficult to crack the market, the burgeoning market has already had its first casualty, reports the Washington paper. In 2009, the Defense Advanced Research Projects Agency (DARPA) awarded contracts to Lockheed Martin and Aeros Aeronautical Systems Corp. to develop a blimp-like system to move troops and equipment to hot spots. The Congressional Budget Office estimated that such a program could potentially be worth about \$1.3 billion. But after investing \$4 million, DARPA did not get the \$20 million it wanted for the program this year.

"That one had a slightly high giggle factor. It just looks too much like the Hindenburg," said John Pike, director of GlobalSecurity.org. "I think there was just conceptual push back on it."

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