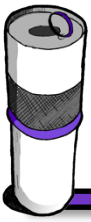


Sky Beacon

Purple B



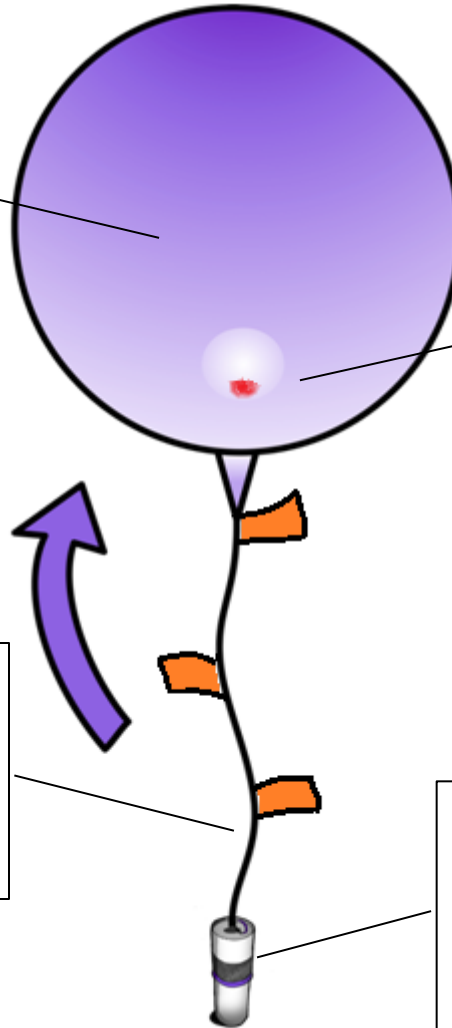
Product Overview

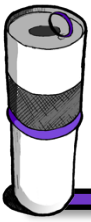
Illuminated signaling balloon using radar and reflection

Bright red and white blinking LEDs for visibility

String marked with orange flags every 50 feet

Housing with helium canister and gas regulator





Product Contract

Customer Need

Product Attributes

Engineering Specs

Lightweight Housing

Weight

Under ½ lbs

Intuitive Deployment

Time to activate

Under 30 seconds

Weather Proof

**Function normally in rain,
wind,
extreme temperature**

**Yes, over 60 mph,
20-120°F**

Highly Visible

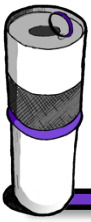
Distance to spot

Over 1 mile

Long Lasting

**Lifetime of LEDs and
helium**

Over 3 days



Housing

One way valve with detachment pull pin

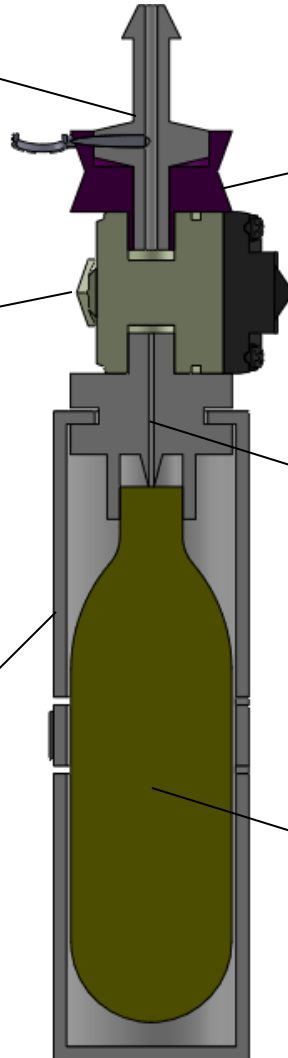
Spool for tether

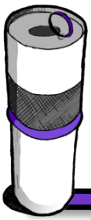
Gas regulator

Block with cartridge puncturing needle

Outer housing for helium cartridge

Helium cartridge



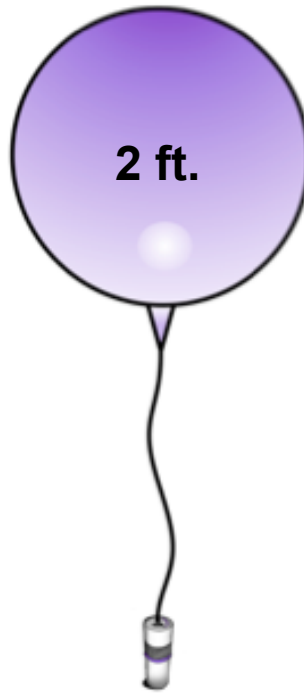


Payload Lift

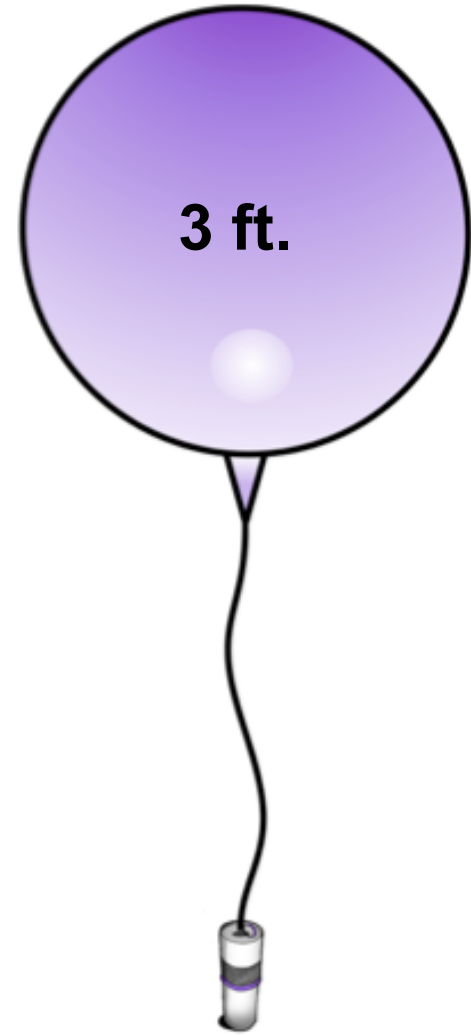
Volume = 0.52 ft^3
Lifting Capacity = 14.8 g



Volume = 4.2 ft^3
Lifting Capacity = 118.1 g



Volume = 14.1 ft^3
Lifting Capacity = 398.67 g

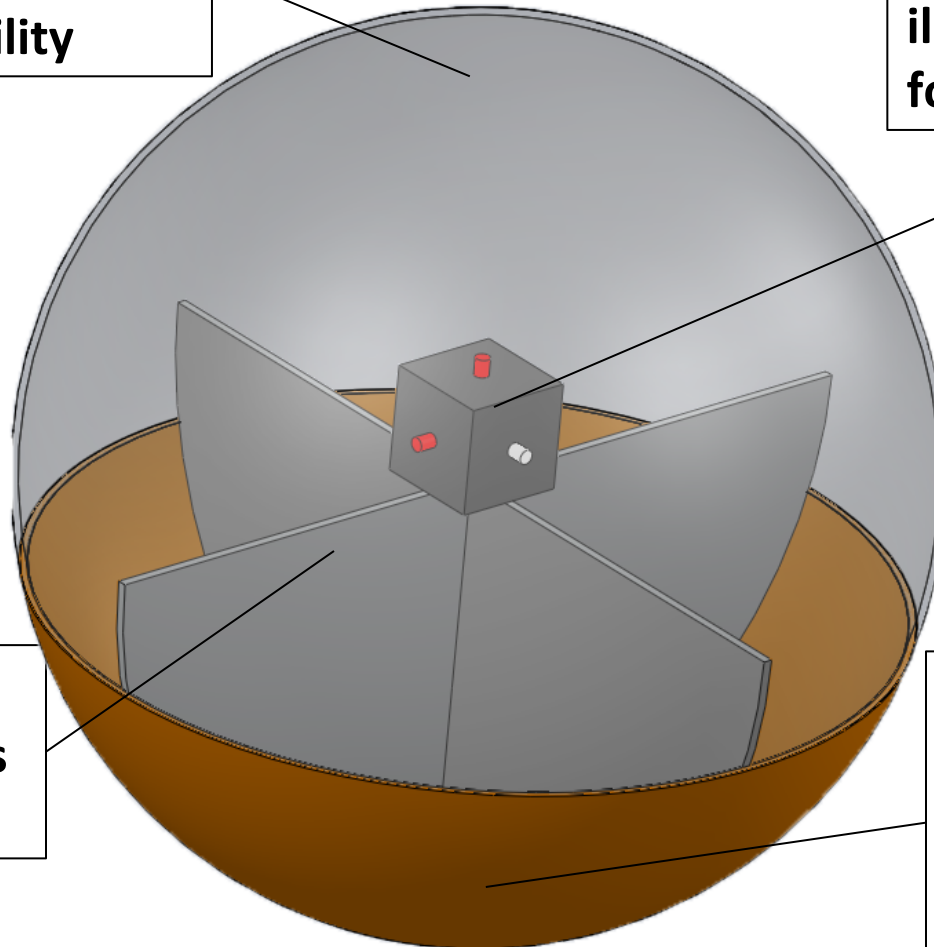




Balloon Design

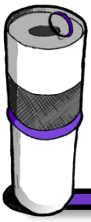
Clear mylar top half of balloon for wide-angle LED and reflector visibility

Red and white LEDs for nighttime illumination, visible for over 3/4 mile



Aluminum foil cross functions as radar reflector

Orange mylar bottom half is high-contrast for ground viewing, required by FAA



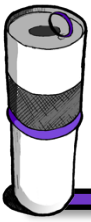
Industry Contacts

- Kidde Fire Systems
 - Consulting on design and manufacturing of custom pressure vessels
 - ergonomics in emergency products



- Also contacted MassCAP, NASAR, Orion Signaling, NEMO, BCA (Back Country Access)





Future Challenges

Challenges

Steps

Device safety and testing setup

Create testing apparatus

Intuitive deployment

Automate balloon release and improve ergonomics of filling

Minimize payload

Miniaturize electronics

Rapid deflation method

Follow FAA regulations