Weather balloon launch

Primary goal  
To launch a balloon with onboard camera to high altitude and recover it.

Future goals  
- To launch a balloon with glider as payload to high altitude, and fly aircraft back to landing.  
- To launch a balloon to high altitude, and have it stay there as long as possible (not explode immediately).

Main components

* Balloon
* Parachute
* Radar reflector
* GPS unit
* Radio transmitter
* Microcontroller
* Battery
* Radio receiver
* cellphone

Communication plan:

-use XBEE-PRO XSC S3B radios for main communication – half-wave dipole antenna on balloon and yagi (?) at groundstation. Sends gps data.

-use arduino to send text messages with gps data at intervals over phone – mainly for locating it when it lands

Resources

<http://www.sparkfun.com/tutorials/361>

<http://www.eoss.org/pubs/faqloon.htm>

<http://www.tc.gc.ca/eng/civilaviation/regserv/cars/part6-602-2436.htm>

<https://www.sparkfun.com/tutorials/185>

<http://habhub.org/predict>

<http://www.parallax.com/tabid/567/Default.aspx>

<http://www.robertharrison.org/icarus/wordpress/>

<http://jeffmurchison.com/blog/send-sms-from-your-arduino/>

<http://didier.quartier-rural.org/implic/ran/sat_wifi/sigprop.pdf>

<http://www.antenna-theory.com/basics/friis.php>

<http://www.radiometrix.com/files/additional/tx1rx1.pdf>