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## VIGIL Radar Sentry

VIGIL is a small radar in lunar orbit to track debris from deep space launches. There have been dozens of rocket stages in lunar-crossing high Earth orbit. There is a possibility that some have been captured in lunar orbit by 3-body effects. With increased travel to the Moon, unexpected objects in lunar orbit pose a risk. Since these objects are not large, and specular flashes may be intermittent, a radar must both maximize power on the target and integrate for a long time. Linear frequency-modulated (LFM) continuous wave (LFMCW) is a method that would address these needs and also avoid range ambiguities.

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