Silicon Diode Spectrometer

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During radioactive decay of an atom, various particles are emitted. The kind and energy of the particles depends on the decaying element and its isotope. Spectrometer is a device capable of measuring energy of these particles and therefore can be used to distinguish different isotopes. This project aims to develop a spectrometer capable of measuring energies of alpha particles or other heavy charged particles and also detect gamma particles. The design of the spectrometer takes into account both the detection capabilities and also the simplicity, price and physical dimensions of the device. The device is intended to be used in monitoring network to perform long term measurements of radiation background and the concentration of radon in the atmosphere and also serve as an early warning system in case of emergency. As the measuring stations are planned to be placed in schools and other public institutions, an important part of these monitoring activities is also educational activities for the general public.

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