Description of System

- Radar pulses are used to image the subsurface. The current system consists of two main parts: SIR-3000 and antenna (200MHz).
- Range of measurements:
  - 30 ft penetration depth, 3.3~17 in. spatial resolution
  - 200 MHz center frequency
  - 512 samples (individual data points) per scan

Procedure of Operation

1. Connect the SIR 3000 with antenna
   Use appropriate cables and connectors.
   Fully charge battery.

2. Set up input and output parameters
   The SIR-3000 has four dropdown menus: Collect, Playback, Output, and System. Each menu has multiple parameters to set following self-explanatory instructions.

3. Calibrate the survey wheel
   A long measured straight line is drown on the survey surface to make the calibration more accurate.

4. Start the survey or detection
   One person pulls the antenna and the other person in the back collects data.

Main Benefits of GPR Survey

- Nondestructive to structures.
- Widely applied for detection of subsurface objects, changes in material property, and voids and cracks.
- Easier to collect data and save files automatically when done from one line to another (see figure to the right).
- Convenient to transfer data from SIR-3000 to a PC for processing and interpretation.

Main Applications of GPR Survey

- Riverbed profiling for bridge scour monitoring.
- Nondestructive tests of structures and pavements (figure to the right) to locate buried structures and utility lines, and identify soils and rock stratification.
- Construction of 2D and 3D tomographic images by a systematic collection of multiple lines of data over an area of interest.