



**SURFACE SYSTEMS & INSTRUMENTS, INC.**

**Custom Test Equipment • Mobile Technology Solutions**

**California**

1845 Industrial Drive  
Auburn, California 95603

☎ (530) 885-1482



38.9295236N, -121.0945153W

**Kansas**

307 Plymate Lane  
Manhattan, Kansas 66502

☎ (785) 539-6305



39.1852186N, -96.6082708W

[smoothroad.com](http://smoothroad.com)

# Off-Road Scanning Systems

Collect Data on Gravel, Durability Tracks, and Harsh Terrain

Grade Measurement

Cross Slope

Dense Point Cloud Survey

RMS and K-Value Report



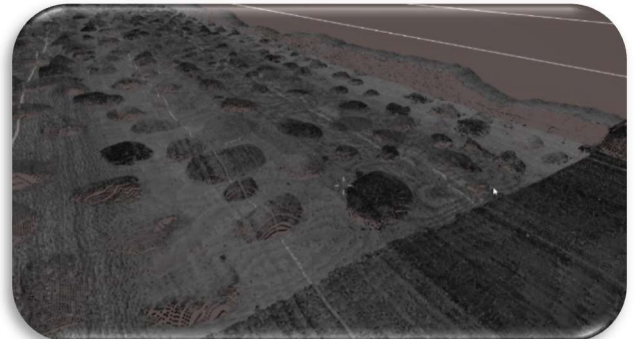
▲ **CS8750 Harsh Terrain Survey Profiler** ▲



▲ **CS9470 Portable Grade Profiler** ▲

Slope - Run 1			
Station (ft)	Cross-Slope Gradient (%)	Running-Slope Gradient (%)	GPS
5892+48.00000	5.768	4.624	36.448488246431 N 116.85511430303 W
5892+49.00000			
5892+49.00000	5.763	4.839	36.4484872395623 N 116.855108298182 W
5892+50.00000			
5892+50.00000	5.862	4.876	36.4484862199306 N 116.855105126493 W
5892+51.00000			
5892+51.00000	5.931	4.689	36.4484851824306 N 116.85510189941 W
5892+52.00000			
5892+52.00000	6.009	4.719	36.4484841449306 N 116.855098672326 W
5892+53.00000			
5892+53.00000	5.987	4.622	36.4484831361616 N 116.855095520404 W
5892+54.00000			
5892+54.00000	5.942	4.545	36.4484821369697 N 116.855092393535 W
5892+55.00000			
5892+55.00000	5.922	4.512	36.4484811377778 N 116.855089266667 W
5892+56.00000			
5892+56.00000	5.967	4.426	36.4484801446465 N 116.855086142626 W
5892+57.00000			
5892+57.00000	6.018	4.400	36.4484791515152 N 116.855083018596 W
5892+58.00000			

▲ **Grade Change and Cross-Slope Reporting** ▲



▲ **GPS Post-Processed PPK Point Cloud** ▲





## Precise Profile & Survey Measurement on Dirt or Gravel

### Features

- **New: INS-DMI.** Maintains accurate distance without OBD through GNSS outages
  - OBD and/or wheel mounted DMI supplied as backup
- Precise slope measurement ( $\pm 0.1\%$  accuracy)
- Designed for safe, one-person operation
- Operator training and technical support available worldwide
- Sensors and hardware designed for field replacement
- High performance GNSS solution with up to 35+ satellites
- Rugged computer supplied with all systems
- Docking station with driver/passenger computer access.
- Powered by host vehicle's 12-volt supply
- **Options:** ROW camera, texture, rut depth, and more

**TOUGHBOOK**

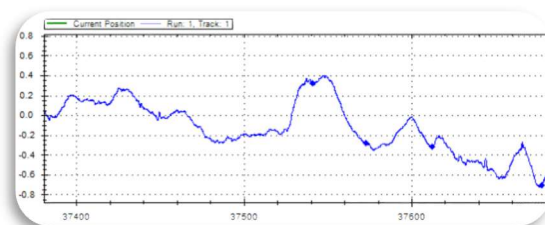
### Software: 25 Years Refined

-  Windows 10/11 Pro software.
- Real time display of traces, speed, and position during collection
- Configurable hot-key shortcuts
- Immediate reporting of results
- Support for Google Earth, CAD software
- User configurable analysis parameters and data editing
- Rewritable raw data: change parameters at any time
- Export data to:   
- Automatic software updates with SSI Profiler 3
- Real-time error logging and web-based reporting

## Multiple Configurable System Options

### Internal Sensor Suspension Profiler

- Base system is accelerometer-only
- No equipment on the outside of vehicle, except GPS antenna
- Report IRI or RMS values for classification of roads
- Measurement speed from 5-74 mph
- Simple setup and **one** calibration



### Portable Grade Profiler

- Portable sonic or laser-based grade profiling system
  - Cross slope reporting optional on 2-sensor system
- Mounts to tow hooks or 2-inch receiver hitch
- Connect power and USB signal cable to collect
- INS and PPK post-processing for accurate grade measurement
- PPK results in 12mm horizontal and 25mm vertical accuracy
- Export grade lines to GIS, CAD formats, K-value report



### UTV Harsh Terrain Profiler

- Harsh terrain rated, Polaris Ranger Survey system
- Export LAS point clouds with survey quality GPS
- Embedded PPK post-processing within SSI Profiler 3 program
- Report cross slope, grade, point cloud elevations
- Sampling interval can be as low as 5mm x 5mm grid
- Typical sampling interval is 2-inches by 0.5-inch



## SURFACE SYSTEMS & INSTRUMENTS, INC.

### California Division

1845 Industrial Drive, Auburn, California 95603  
 Tel: (415) 383-0570 • Fax: (415) 358-4340  
[smoothroad.com](http://smoothroad.com)

### Kansas Division

307 Plymate Lane, Manhattan, Kansas 66502  
 Tel: (785) 539-6305  
[info@smoothroad.com](mailto:info@smoothroad.com)