



SHARP MAPPING

Product Catalog

(Geotech & Spatial)

PT. CHOICE PLUS GEMILANG

NEO SOHO PODOMORO CITY, JL. LETJEN S. PARMAN UNIT 3810, RT.3/RW.2, TJ.
DUREN SEL., KEC. GROGOL PETAMBURAN, KOTA JAKARTA BARAT, DAERAH KHUSUS
IBUKOTA JAKARTA 11470



GNSS Geodetic

The GNSS Geodetic system is a high-precision geospatial solution designed to determine accurate geographic positions for various applications such as land surveying, mapping, construction, and mining. It utilizes a network of global satellite constellations including GPS, GLONASS, BeiDou, and Galileo to provide centimeter-level accuracy.

With advanced multi-mode capabilities and robust radio specifications, the GNSS Geodetic system is ideal for fieldwork in demanding environments and supports both static and real-time operations.



FUNCTION

- Provides high-precision geospatial positioning (cm-level accuracy)
- Used for topographic mapping, boundary demarcation, construction, and deformation monitoring
- Supports multiple positioning modes: Static, PPK, RTK, and NTRIP
- Suitable for integration with drones, total stations, and GIS platforms

KEY SPECIFICATION

SUPPORTED BRANDS: CHC, UniStrong

SATELLITE CONSTELLATIONS:

- GPS / GLONASS / BeiDou / Galileo / SBAS

MAINBOARD:

- Trimble, Hemisphere

OPERATION MODES:

- Static, PPK
- RTK Radio and NTRIP
- L-Band Ready (Atlas/Trimble RTX)

DATA FORMATS:

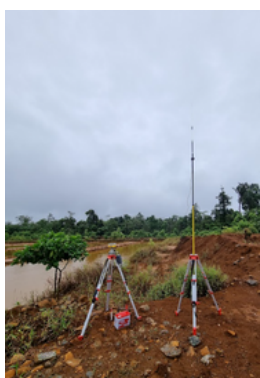
- CMR, CMR+, RTCM 3.0, RTCM 3.2, NMEA 0813

RADIO SPECIFICATIONS:

- Integrated TRx Radio (0.5-2 Watts)
- Trimtalk 450S, Transparent
- Frequency Range: 410-470 MHz (410-450 MHz or 450-470 MHz)



IMPLEMENTED PROJECT



SLAM RTK



The SLAM RTK system integrates simultaneous localization and mapping (SLAM) technology with high-precision GNSS RTK positioning to provide real-time 3D mapping in complex environments. The system automatically collects and processes spatial data while moving, ensuring centimeter-level accuracy even in GNSS-denied areas such as indoor, underground, or forested environments. The fusion of SLAM algorithm, IMU, and RTK GNSS enables precise localization and real-time point cloud generation, significantly enhancing surveying efficiency, data accuracy, and safety in various industrial applications.

Why Do We Need This System?

Precision Mapping Anywhere

Map environments even without GNSS signals – underground, indoors, or dense forests – with centimeter-level accuracy.

Cost & Time Efficiency

Drastically reduce survey time and manpower with autonomous data collection and real-time processing.

Versatile Applications

Suitable for a wide range of industries, from construction and forestry to public safety and heritage preservation.

Improved Safety

Enable safe data acquisition in hazardous or hard-to-reach environments, reducing risks to surveyors.

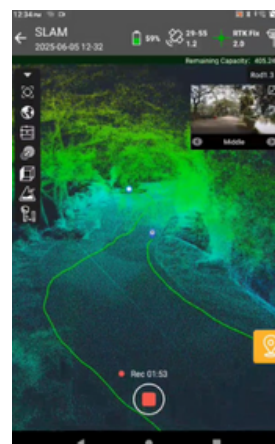
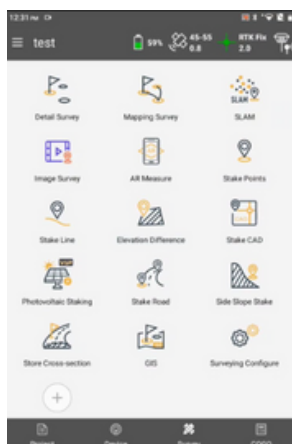


Features

- cm-level positioning accuracy using RTK
- 360° laser scanning with full environment capture
- Lightweight and portable design
- AI-enhanced SLAM algorithm for improved map stitching
- Compatible with major GIS and CAD platforms
- Long battery life & robust build for field deployment

Component

- SLAM Scanner Unit (Lidar + Camera)
- RTK GNSS Antenna
- High-Precision IMU
- Backpack Mount or Handheld Rig
- Control & Display Tablet (Real-time preview)
- Post-processing Software (SLAM Studio)



SLAM SCANNER

The SLAM Scanner is a high-precision mobile scanning system based on LiDAR and SLAM (Simultaneous Localization and Mapping) technology. Designed for efficient and accurate 3D data collection in both indoor and outdoor environments, this solution generates real-time point clouds and trajectory paths even without GNSS signal availability. It combines laser scanning, IMU, and an intelligent SLAM algorithm, enabling surveyors to rapidly capture spatial information with high resolution and centimeter-level accuracy.

Why Do We Need This System?

Accurate Scanning Without GPS

Ideal for complex environments where GNSS is unavailable, such as underground mines, indoors, and dense urban areas.

Fast Data Acquisition

Reduce survey time drastically with mobile scanning — no need for traditional static setups.

Compact & Portable

Lightweight system allows easy deployment in tight spaces or remote areas.

Flexible Integration

Data can be exported to standard GIS and CAD software for further analysis and modeling.



Features

- Lightweight, modular design (handheld/backpack)
- 360° panoramic scanning coverage
- Plug & play setup with intuitive interface
- Compatible with various point cloud software
- Long battery life (up to 3-4 hours continuous use)
- High accuracy: up to 2-3 cm in optimal conditions

Component

- LiDAR Sensor Unit
- Built-in IMU (Inertial Measurement Unit)
- Processing Module (onboard or external)
- Display Tablet or Control App
- Mounting Options (Backpack, Handheld)
- Software Suite for SLAM processing and point cloud management



Support Multiple Platform Operation Modes

It enables seamless transitions between handheld, backpack, vehicle-mounted, and airborne operations for diverse surveying needs.



GB-SAR

Ground-Based Synthetic Aperture Radar (GB-SAR) is a powerful remote sensing technology used for monitoring slopes and detecting small surface displacements with high precision. It is widely applied in landslide-prone areas, open-pit mining, and geotechnical engineering to ensure safety and early warning of potential hazards.

How GB-SAR Works for Slope Monitoring?

GB-SAR operates by moving a radar system along a linear rail, creating a synthetic aperture that allows for high-resolution imaging. The system emits microwave signals that bounce off the slope surface and return to the sensor. By analyzing the phase differences between repeated measurements, it can detect even minute movements in the terrain.



GB-SAR300

GB-SAR300 (Rotary type) is an ultra-lightweight slope radar, featuring flexible deployment, easy operation, and maintenance. It is primarily used for high-precision real-time deformation monitoring and early warning of slopes, as well as ensuring landslide monitoring during emergency rescue operations.

Main Function & Feature



Comprehensive monitoring, 360°
full-range scanning for thorough coverage.



Swift and precise updates, Fast, accurate deformation tracking, even at long distances.



Advanced intelligence, This feature set includes self-diagnosis, automatic reconnection, remote access, and data retrieval.



Flexible communication, 4G, WIFI, and wired access options.

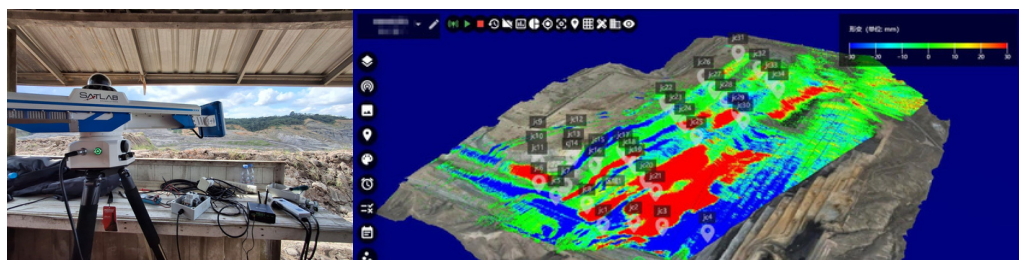


Rapid deployment, Quick and convenient setup through the integrated monitoring system.



Robust in any environment, All-weather, all-day operation with resistance to water, shocks, wind, extreme temperatures, & harsh field conditions.

IMPLEMENTED PROJECT



GNSS Monitoring System

The GNSS Monitoring System powered by the MS401 Receiver is a high-precision, multi-frequency GNSS solution designed for continuous deformation monitoring and positioning applications. With support for GPS, GLONASS, Galileo, and BeiDou, the MS401 ensures centimeter-level accuracy in real-time, making it ideal for monitoring infrastructure, slopes, mining areas, and critical assets. This system integrates GNSS technology with real-time data transmission, automatic alerting, and cloud-based platform access to ensure proactive monitoring and risk mitigation.




MS401 Receiver


Why Do We Need This System?

 **Reliable, Real-Time Monitoring**


Monitor geohazards and structural movement 24/7 with centimeter-level accuracy in any condition.

 **Early Warning & Risk Reduction**

Automated alert system helps detect critical displacement trends before disaster strikes.

 **Low Maintenance, Solar-Ready**

Ideal for long-term deployment in remote sites with minimal manual intervention.

 **Scalable Integration**

Can be expanded with other sensors (tilt, weather, vibration) for full monitoring ecosystem.

Features

- Compact & rugged IP67-rated design
- Supports multi-constellation GNSS tracking
- Low power consumption with solar compatibility
- Easy deployment in remote and harsh environments
- Web-based visualization and alert dashboard
- Compatible with SCADA and geospatial monitoring platforms

Component

- MS401 GNSS Receiver Unit
- High-precision GNSS Antenna
- Power Supply (Battery/Solar Panel)
- Data Logger & Communication Modem
- Monitoring & Alerting Platform

Applications

- Slope movement and landslide early warning
- Structural health monitoring (bridges, buildings, towers)
- Mining pit wall and tailings dam deformation
- Tunnel and underground excavation monitoring
- Earthquake and geohazard detection
- Large infrastructure and geotechnical projects

Real-Time Monitoring

- Continuous GNSS data acquisition and logging
- Centimeter-level positioning (RTK/PPK)
- Support for GPS, GLONASS, BeiDou, Galileo
- Real-time alarm and threshold-based alerting
- Integration with weather or tilt sensors (optional)
- Compatible with various telemetry methods (4G, Wi-Fi, Radio, LAN)



Crack Meter

Crack Meter HDS102

HDS 102 is a multifunctional sensor that integrates (Tilt/Vibration/Crack) with hardware self-testing, local edge calculation, threshold triggering, power outage continuity, low power consumption, etc. It can monitor surface cracks, tilt variations, mass acceleration, power supply system status, etc. Simultaneously and in a single unit, it saves costs and facilitates the correlation of data for comprehensive analysis. Low power consumption, strong functions and good stability are its most outstanding superior characteristics.

Main Function & Feature

Sensor Integration

A collection of multiple sensors, data acquisition, transmission, and storage in one device

Communication Support

Supports NB-IoT / LoRa / Alpha / 2G / 4G / 5G communication methods

Power Supply

- Supports dual power supply system.
- Integrated flexible solar panels.
- Single lithium-ion battery power supply can support more than 3 years of normal operation.

Trigger and Security

- Threshold triggered.
- Encrypted capture and upload capabilities

Magnetometer

Built-in magnetometer to measure the angle to the magnetic north.

Anti-Theft Function

- Built-in BeiDou + GPS dual-mode positioning.
- Real-time location tracking of the device.

Data Continuity

- Supports continuous transmission at breakpoints.
- Ensures data continuity and integrity.

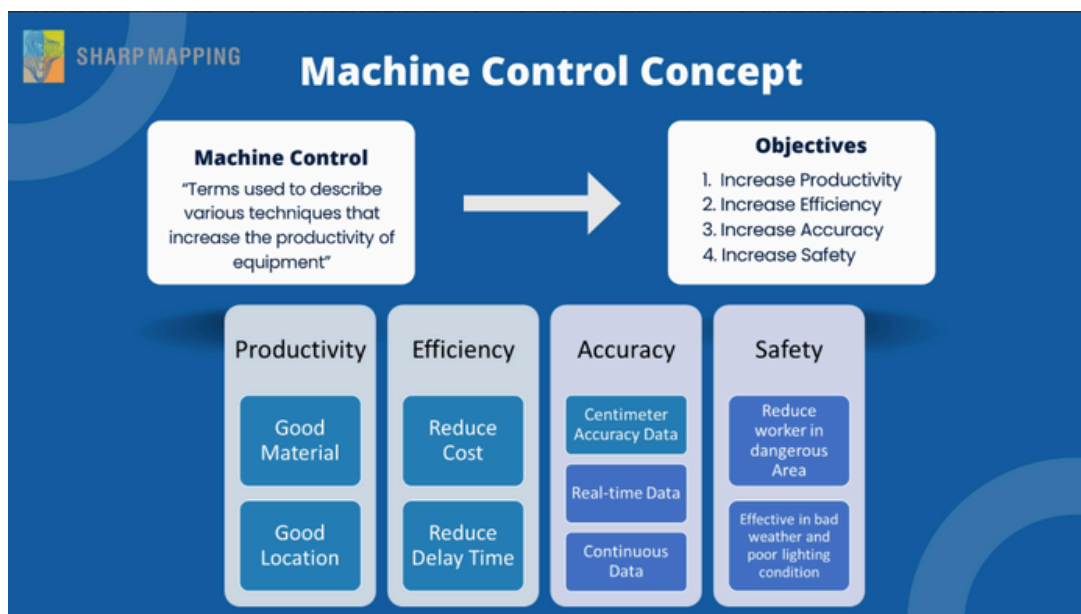
Industrial-Grade Design

- Shockproof, impact-proof, drop-proof, lightning-proof.
- IP68 protection level.

IMPLEMENTED PROJECT



Machine Control



There are 5 types of Machine Control that we provide, namely:

- Excavator Machine Control
- Drilling Machine Control
- Compactor Machine Control
- Dozer Machine Control
- Grader Machine Control

Excavator Machine Control

Excavator machine control is a GNSS and sensor-based automation system that helps operators dig more accurately and efficiently. The system displays real-time data on the cabin screen, allowing the operator to dig according to the digital design without the need for repeated manual surveys.

Main Feature

Real-time data transmission – enables better decision-making. Can be integrated with site management systems for automated reporting.

Centimeter level accuracy – Avoid overcut or undercut when digging, reducing errors and wasted material.

Intuitive software – user friendly, easy to navigate system that allows operators to control and monitor their equipment efficiently.

Design and Basemap Layer – overlays precise engineering plans to ensure machines operate according to project specifications.

Multi Correctional Data (wifi, Radio Modem, 4G) – receive real-time positioning corrections from multiple communication sources, such as Wi-Fi, radio modems, and 4G networks.



System Components



Component

- 2 GNSS Antenna
- 4 Tilt / Inertia Sensor
- 1 Display Terminal

Implemented Project



Excavator Machine Control at PT Bukit Asam

Why Do We Need This System?

1. Precision & Accuracy

- a. Eliminates over-excavation and under-excavation by following exact design specifications.
- b. GNSS and real-time sensors ensure centimeter-level accuracy.

2. Increased Efficiency & Productivity

- a. Reduces rework and manual staking, allowing faster project completion.
- b. Operators can work more effectively, reducing machine idle time.

3. Cost Savings

- a. Lowers fuel consumption by optimizing digging routes.
- b. Reduces wear and tear on equipment, extending machinery lifespan.

4. Enhanced Safety

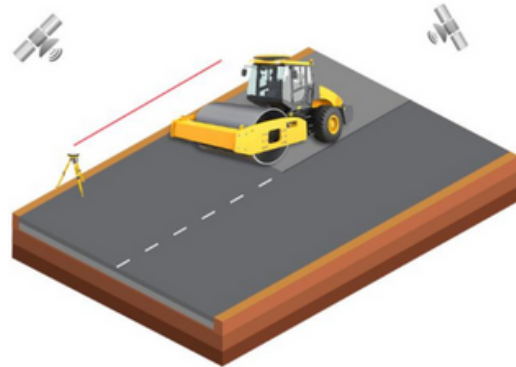
- a. Minimizes the need for surveyors and workers to be in hazardous areas.
- b. Reduces accidents by guiding operators with real-time feedback.

5. Environmental Benefits

- a. Prevents unnecessary material removal, reducing environmental impact.
- b. Optimized digging helps maintain site stability and reduce ground disturbance.

Compactor Machine Control

The system adopts multi-star high-precision real-time positioning technology and compaction sensor monitoring technology, and through real-time software processing. The roller travel direction, travel speed, VCV value, number of passes of the roller, etc., are recorded and displayed in real time digitally and pictorially, so as to guide the construction work.



Applications

Compaction control of earth layered filling, base layer and surface layer of railroad, highway, water conservancy and hydroelectric dams, ports and harbors, plazas and other engineering construction projects

REAL TIME JOB GUIDANCE

- Real time drawing
- Legend of index, accurate distinction
- Centimeter level positioning of roller wheel
- Real time display of rolling index
- velocity, temperature, vibration
- Real time Alarm



Features

- Digital, graphical real-time display
- Realize process quality control
- Display weak areas to improve the passing rate of a single inspection
- Surface control instead of sampling quality control
- Reduce the requirement for machinists, reduce labor costs

Why Do We Need This Systems?

	Increased Efficiency & Productivity <ul style="list-style-type: none"> Reduces unnecessary passes, saving time and fuel. Optimizes compaction patterns to improve consistency.
	Cost Savings <ul style="list-style-type: none"> Minimizes material wastage and over-compaction, reducing repair costs. Lowers fuel consumption and extends equipment lifespan.
	Improved Quality & Compliance <ul style="list-style-type: none"> Ensures the ground meets engineering and safety standards. Provides accurate compaction reports for quality control and auditing.
	Enhanced Operator Guidance & Safety <ul style="list-style-type: none"> Helps operators avoid soft spots or under-compacted areas. Reduces the need for manual testing and ground inspections.

Component



Implemented Project



Compactor Machine Guidance at Site MNC

Dozer Machine Control

Bulldozer machine control is an advanced system that uses GNSS, GPS, total stations, sensors, and automation to optimize grading and earthmoving operations. It improves accuracy, reduces material waste, and enhances productivity in industries like construction, mining, roadwork, and land development.

Main Feature

Automated Blade Control - Adjusts blade height and angle automatically for precise grading.

Real-time Terrain Mapping - Uses GPS and sensors to track surface changes and guide operators.

Grade & Slope Accuracy - Ensures the ground meets design specifications with minimal rework.

Cut/Fill Optimization - Reduces unnecessary soil movement, saving time and fuel.

Data Logging & Reporting - Captures project progress for quality control and documentation.

GPS/GNSS Positioning - Enables precise machine tracking and alignment.

Software Overview



Why Do We Need This System?



Increased Accuracy & Efficiency

- Reduces reliance on manual staking and surveying.
- Ensures consistent grading, avoiding undercutting or overfilling.



Cost & Time Savings

- Lowers fuel consumption and reduces equipment wear.
- Minimizes rework by achieving the correct grade on the first pass.



Enhanced Safety & Operator Assistance

- Reduces operator fatigue by automating repetitive tasks.
- Minimizes exposure to hazardous job site conditions.



Better Project Management & Compliance

- Meets regulatory grading standards with detailed data logging.
- Provides real-time insights for site managers and engineers.

System Components



Implemented Project



Dozer Machine Control at PT Bukit Asam

Grader Machine Control

Grader machine control is an advanced technology that uses GNSS, GPS, total stations, sensors, and automation to improve the accuracy and efficiency of grading operations. It helps operators achieve precise leveling, reduce material waste, and increase productivity in applications like road construction, mining, and land development.

Main Function & Features



WHY DO WE NEED THIS SYSTEM?

1. Increased Accuracy & Efficiency
 - a. Achieves precise grading with minimal manual adjustments.
 - b. Reduces reliance on survey stakes and manual checking.
2. Cost & Time Savings
 - a. Cuts down material waste & reduces rework
 - b. Lowers fuel consumption and extends machine lifespan.
3. Improved Safety & Operator Assistance
 - a. Reduces operator fatigue with automated blade control.
 - b. Minimizes the risk of errors and accidents.
4. Better Project Management & Compliance
 - a. Ensures grading meets design specifications and industry standards.
 - b. Provides real-time data for monitoring and reporting.



System Components





SHARP MAPPING

Contact Us

PT. CHOICE PLUS GEMILANG

Neo Soho Podomoro City, Jl. Letjen S. Parman Unit 3810, RT.3/RW.2,
Tj. Duren Sel., Kec. Grogol petamburan, Kota Jakarta Barat, Daerah
Khusus Ibukota Jakarta 11470

