



## INTISARI

PT Kereta Api Indonesia (Persero) mengelola aset Komersialisasi Non Angkutan (KNA) berupa lahan dan bangunan di setiap stasiun. Stasiun Solo Balapan merupakan stasiun induk di Surakarta, yang mengelola aset melalui inventarisasi dan penyewaan aset. Namun terdapat keterbatasan data spasial dan nonspasial, sehingga proses pengelolaan aset belum optimal. Oleh karena itu, diperlukan peta interaktif berupa Sistem Informasi Geografis berbasis *Website* (SIGWeb). Penelitian ini bertujuan untuk membuat Sistem Informasi Aset Komersialisasi Non Angkutan (SIAKNA) di Stasiun Solo Balapan yang terbatas pada aset *non right of way* atau aset di luar jalur perkeretaapian.

Pembuatan SIAKNA menggunakan dua data hasil akuisi pada Januari 2025. Pertama, data nonspasial meliputi data bidang aset dan batas aset diperoleh dari Unit Penjagaan Aset serta data penghuni aset diperoleh dari Unit Komersialisasi Non Angkutan. Selain itu, data NJOP diperoleh dari situs <https://pajak.surakarta.go.id/smartgis/>. Pembuatan SIAKNA menggunakan konsep SDLC (*Systems Development Life Cycle*) dengan metode *prototyping* dengan struktur *frontend* menggunakan HTML, CSS, dan JavaScript serta struktur *backend* menggunakan PHP dan MySQL. Penyajian peta interaktif menggunakan *library* Leaflet JS dan pembuatan responsivitas antarmuka menggunakan *framework* Bootstrap.

SIAKNA telah dilakukan pengujian fungsionalitas sistem, pengujian validasi *input* dan *output*, serta pengujian kebergunaan. Pengujian fungsionalitas menggunakan metode *black box testing*, menunjukkan algoritma pemrograman sesuai spesifikasi rancangan. Pengujian validasi *input* dan *output* menggunakan metode *white box testing*, menunjukkan algoritma pemrograman pada *backend* dan *output* pada *frontend* sesuai spesifikasi. Pengujian kebergunaan menggunakan metode skala *likert* berdasarkan aspek *learnability*, *memorability*, *efficiency*, *error*, dan *satisfaction*, dilaksanakan oleh 103 responden terdiri atas masyarakat, mahasiswa, pegawai Unit Penjagaan Aset dan Unit Komersialisasi Non Angkutan menunjukkan nilai 86,55%, bahwa SIAKNA termasuk kategori sangat layak. Situs SIAKNA diakses melalui <https://siakna.infinityfreeapp.com/>, yang mengatur akses pengguna menggunakan metode *Role-Based Access Control* (RBAC).

**Kata Kunci:** Komersialisasi Non Angkutan, PT KAI, Stasiun Solo Balapan, SIGWeb, *role-based access control*, *white box testing*, *black box testing*, skala likert.



## ABSTRACT

PT Kereta Api Indonesia (Persero) manages Non-Transportation Commercialization Assets (KNA) in the form of land and buildings at each station. Solo Balapan Station is the main station in Surakarta, which manages assets through inventory and leasing. However, there are limitations in spatial and nonspatial data, making the asset management process not optimal. Therefore, an interactive map in the form of a Web-Based Geographic Information System (WebGIS) is necessary. This research aims to create a Non-Transportation Commercialization Asset Information System (SIAKNA) at Solo Balapan Station, limited to non right of way assets or off-railway assets.

The creation of SIAKNA uses two data sets acquired in January 2025. First, nonspatial data includes asset field data and asset boundary data obtained from the Asset Guard Unit, as well as asset occupant data obtained from the Non-Transportation Commercialization Unit. In addition, NJOP data is obtained from the website <https://pajak.surakarta.go.id/smartgis/>. The development of SIAKNA employs the SDLC (Systems Development Life Cycle) concept with a prototyping method, using HTML, CSS, and JavaScript for the frontend structure, and PHP and MySQL for the backend structure. Interactive map presentation uses the Leaflet JS library and interface responsiveness is created using the Bootstrap framework.

SIAKNA has undergone functionality testing of the system, input and output validation testing, and usability testing. Functionality testing using black box testing method shows that the programming algorithm meets the design specifications. Input and output validation testing using white box testing method shows that the programming algorithm on the backend and the output on the frontend meet the specifications. Usability testing using likert scale based on aspects of learnability, memorability, efficiency, error, and satisfaction was conducted with 103 respondents consisting of the public, college students, personnel from the Asset Security Unit, and the Non-Transport Commercialization Unit, indicating a score of 86.55%, which categorizes SIAKNA as very feasible. The SIAKNA site can be accessed via <https://siakna.infinityfreeapp.com/>, which manages user access using Role-Based Access Control (RBAC) method.

**Keywords:** Non-Transport Commercialization, PT KAI, Solo Balapan Station, SIGWeb, role-based access control, white box testing, black box testing, likert scale