

BAB VI

PENUTUP

A. Kesimpulan

Berdasarkan hasil perancangan, implementasi, dan pengujian terhadap proyek Implementasi *Navigation Service* Untuk *Automated Guided Vehicle* Pada *Hexagonal Grid Workspace* dapat ditarik kesimpulan:

1. Proyek ini menghasilkan dua keluaran, yaitu *Navigation Service* dan Prototipe AGV yang mampu saling berkomunikasi melalui protokol *websocket*.
2. Sistem yang dibangun mampu melakukan perencanaan rute menggunakan algoritma A*, deteksi rintangan yang menghalangi rute, dan perencanaan jalur ulang, serta memperbarui peta.

B. Saran

Meskipun proyek ini telah dibangun dengan baik, masih terdapat berbagai catatan dan pengembangan lebih lanjut yang dapat dilakukan untuk penelitian lebih lanjut:

1. Sensor Fusi: Penggunaan dan integrasi berbagai jenis sensor lainnya seperti enkoder motor dan sensor *Inertial Measurement Unit* (IMU) untuk meningkatkan akurasi dalam menentukan perubahan posisi AGV.
2. Pengembangan Fungsi Navigasi: Pengembangan fungsi navigasi seperti perhitungan tata letak rintangan sekitar AGV untuk menurunkan peluang tabrakan.
3. Keamanan Sistem: Mengimplementasikan keamanan sistem seperti token, *api key*, atau *cookie* untuk menghindari potensi gangguan atau akses tidak sah pada AGV.

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