Pengembangan Prototipe AC (Air-Conditioner) Kereta Ringan Hibrid dan Cerdas (KRHC) dengan kapasitas pendinginan 35kW = Enhancement of the Prototype Air Conditioning System for the LightweightHybrid and Smart Train (KRHC) with a Cooling Capacity of 35kW

Nasruddin, author

Abstrak

Laporan praktik keinsinyuran ini mendokumentasikan langkah-langkah, tantangan, dan keputusan strategis dalam pengembangan prototipe AC untuk Kereta Ringan Hibrid dan Cerdas (KRHC) 35kW. Laporan ini bertujuan memberikan gambaran rinci terkait implementasi konsep keinsinyuran dalam pengembangan teknologi pendinginan inovatif untuk kendaraan kereta ringan. Manfaat laporan ini adalah memberikan pemahaman mendalam bagi pembaca, terkait aspek teknis dan pengambilan keputusan dalam pengembangan AC untuk KRHC 35kW. Selain itu, laporan ini dapat berkontribusi dalam memberikan pemahaman pada mahasiswa, peneliti, dan praktisi keinsinyuran yang tertarik dalam pengembangan teknologi transportasi ramah lingkungan. Aspek Dasar Keselamatan, Kesehatan, dan Kelestarian Lingkungan (K3LL) dan penerapan Kode Etik Insinyur (KEI) menjadi pondasi utama dalam pengembangan prototipe AC untuk KRHC 35kW. K3LL memastikan tidak hanya efektivitas pada teknis AC, akan tetapi juga pada kesejahteraan tim dan dampak lingkungan melalui standar keselamatan, dukungan kesehatan, kebijakan kelestarian lingkungan, dan evaluasi risiko. Sedangkan KEI menjamin keselamatan, kesehatan masyarakat, dan kerahasiaan informasi, sambil mendorong keberlanjutan lingkungan. Pada tahap pengembangan, fokus diberikan pada inovasi desain, efisiensi energi, dan keamanan operasional. Keberhasilan prototipe AC mencerminkan keterampilan teknis, manajemen proyek, dan komitmen terhadap inovasi. Prototipe ini membuka peluang untuk penerapan teknologi serupa pada pengembangan kendaraan kereta ringan hibrid dan cerdas di masa depan.

.....This engineering practice report meticulously captures the intricate steps, formidable challenges, and pivotal strategic decisions entailed in crafting a prototype Air Conditioning (AC) system for the Lightweight Hybrid and Smart Train (KRHC) boasting a cooling capacity of 35kW. The primary objective is to furnish a comprehensive insight into the application of engineering principles in the development of cutting-edge cooling technology tailored for lightweight train vehicles. The report's significance extends to offering a profound understanding for readers intrigued by the intricate technical facets and nuanced decision-making processes inherent in the AC development for KRHC 35kW. Furthermore, this report significantly contributes to the knowledge pool of students, researchers, and engineering professionals with an interest in the development of eco-friendly transportation technologies. Foundational elements such as Safety, Health, and Environmental Sustainability (K3LL), coupled with the steadfast adherence to the Engineer's Code of Ethics (KEI), constitute the bedrock of the AC prototype development for KRHC 35kW. K3LL ensures not only the technical prowess of the AC but also the well-being of the development team and the environmental footprint through adherence to safety standards, healthcare support, environmental sustainability policies, and comprehensive risk evaluations. KEI plays a pivotal role in assuring safety, public health, and the confidentiality of project information, concurrently championing environmental sustainability. Throughout

the developmental stages, unwavering focus is directed towards fostering design innovation, enhancing energy efficiency, and fortifying operational safety. The resounding success of the AC prototype serves as a testament to the collective technical acumen, astute project management, and unwavering dedication to innovation. Beyond its immediate achievement, this prototype heralds opportunities for the widespread application of similar technologies in the ongoing evolution of lightweight hybrid and smart train vehicles.