INTISARI

Fakultas Teknik UGM merupakan kawasan dengan tingkat mobilitas yang tinggi. Peningkatan jumlah kendaraan bermotor di kawasan kampus berimbas pada meningkatnya emisi karbon dan gas rumah kaca. Akibatnya, kenyamanan kegiatan belajar mengajar menjadi terganggu. Oleh karena itu, diusulkan desain fasilitas pedestrian berkonsep *smart and green pedestrian lane*. *Smart and Green Pedestrian Lane* merupakan konsep jalur pejalan kaki yang mengedepankan penggunaan teknologi ramah lingkungan dan ditujukan sebagai usaha untuk mewujudkan visi UGM sebagai kampus *zero emission*. Konsep "*smart*" diinterpretasikan dalam penggunaan *smart lighting system* dan trotoar kinetik (*piezoelektrik*) yang mengubah energi kinetik dari langkah kaki menjadi energi listrik. Sementara konsep "*green*" diinterpretasikan dalam penggunaan *green roof*, penyediaan tempat sampah, dan jalur hijau yang ramah lingkungan. Data penelitian diperoleh melalui penyebaran kuesioner kepada sebanyak 134 responden dan observasi lapangan di lingkungan Fakultas Teknik UGM untuk mengamati ketersediaan dan kondisi fisik fasilitas pedestrian di kawasan ini. Penelitian ini juga didukung data sekunder berupa data jumlah mahasiswa, dosen, dan karyawan Fakultas Teknik UGM serta peta Fakultas Teknik UGM. Setelah diperoleh data primer maupun sekunder dilakukan analisis mengenai permasalahan yang dialami masyarakat selama menggunakan fasilitas pedestrian dilanjutkan perancangan *Smart and Green Pedestrian Lane* di lingkungan Fakultas Teknik UGM. Proses perancangan dibantu dengan *software* SketchUp, AutoCAD, dan Microsoft Excel. Berdasarkan penelitian yang dilakukan diketahui bahwa beberapa fasilitas *pedestrian* masih cukup baik, tetapi perlu dioptimalkan lagi karena masih terdapat konektivitas yang belum difasilitasi dengan jalur pejalan kaki. Desain *pedestrian lane* ini dibagi dalam 6 tipikal perancangan yang dibedakan berdasarkan lebar dan fasilitas pendukung menyesuaikan kebutuhan pejalan kaki.

Kata kunci: *smart*, *green*, *pedestrian lane*, pejalan kaki, *zero emission*.

ABSTRACT

Faculty of Engineering, UGM is an area with a high level of mobility. The increase in the number of motorized vehicles has an impact on increasing carbon emissions. So that, the comfort of teaching and learning activities is disrupted. Therefore, it is proposed to design pedestrian facilities with the concept of the Smart and Green Pedestrian Lane. Smart and Green Pedestrian Lane is a pedestrian lane concept that emphasizes the use of environmentally technology and is intended as an effort to realize UGM's vision as a zero emission campus. The concept of "smart" is interpreted in the use of a smart lighting system and kinetic pavements. While the concept of "green" is interpreted in the use of green roofs, the provision of trash cans, and green lanes. The research data was obtained by distributing questionnaires and field observations in the Faculty of Engineering, UGM to observe the availability and physical condition of pedestrian facilities in this area. This research is also supported by secondary data in the form of data on the number of students, lecturers, and staff at Faculty of Engineering, UGM also a map of the Faculty of Engineering UGM. After obtaining primary and secondary data, an analysis was carried out regarding the problems experienced by the community while using pedestrian facilities, followed by the design of Smart and Green Pedestrian Lanes within Faculty of Engineering, UGM. The design process uses SketchUp, AutoCAD, and Microsoft Excel software. Based on the research conducted, it is known that several pedestrian facilities are quite good, but need to be further optimized because there is still connectivity that has not been facilitated with pedestrian lane. The pedestrian lane design is divided into 6 typical designs which are differentiated based on width and supporting facilities according to the needs of pedestrians.

Keywords: *smart, green, pedestrian lane, pedestrian, zero-emission.*