Validasi Desain Teknologi Smart Portable Roaster Berdasarkan Persepsi Pengguna dengan Pendekatan
Technology Acceptance Model
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VALIDASI DESAIN TEKNOLOGI *SMART PORTABLE ROASTER* BERDASARKAN PERSEPSI PENGGUNA DENGAN PENDEKATAN *TECHNOLOGY ACCEPTANCE MODEL*

INTISARI

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Perkembangan komunitas *roasting* kopi di Indonesia mendorong inovasi mesin sangrai kopi berbasis *Internet of Things* (IoT), namun peluang mesin tersebut untuk diadopsi pasar juga ditentukan oleh penerimaan calon penggunanya. *Smart Portable Roaster* (SPR) G2 telah selesai dirancang bangun, tetapi desainnya belum divalidasi terhadap kebutuhan pengguna sasaran. Penelitian ini bertujuan mengukur penerimaan calon pengguna terhadap SPR G2 berdasarkan *Technology Acceptance Model* (TAM), menganalisis hubungan antarkonstruk TAM, serta menetapkan status validasi fitur desain beserta rekomendasi perbaikannya. Penelitian menggunakan metode survei terhadap 30 calon pengguna yang aktif melakukan penyangraian kopi di Daerah Istimewa Yogyakarta dan sekitarnya setelah mengikuti sesi demonstrasi SPR G2. Parameter yang diamati meliputi *perceived usefulness* (PU), *perceived ease of use machine operation* (PEOU-M), *perceived ease of use app interface* (PEOU-A), dan *behavioral intention* (BI) yang diukur dengan kuesioner skala Likert 1–5, dilengkapi tiga pertanyaan terbuka. Data dianalisis menggunakan uji validitas, reliabilitas, normalitas Shapiro-Wilk, korelasi Spearman, dan analisis isi. Hasil penelitian menunjukkan bahwa PU berada pada kategori sangat tinggi (4,35), sedangkan PEOU-M, PEOU-A, dan BI berada pada kategori tinggi (4,14; 4,08; 3,93). Empat dari lima hipotesis diterima dengan kekuatan hubungan sedang (r = 0,407–0,486), sedangkan hubungan PEOU-A dengan BI tidak signifikan (r = 0,265). Kekhawatiran utama responden adalah biaya (24% respons) dan preferensi terhadap kontrol manual atau mode luring. Dari enam fitur desain, tiga fitur tervalidasi dan tiga fitur tervalidasi bersyarat, yaitu monitoring dan kontrol melalui *smartphone*, tampilan aplikasi, serta harga dan konfigurasi sistem, sehingga perbaikan desain diprioritaskan pada keandalan kendali ketika koneksi terputus dan konfigurasi modular untuk menekan biaya.

Kata kunci: Calon pengguna roaster, mesin sangrai kopi, IoT, Technology Acceptance Model, Validasi desain.

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DESIGN VALIDATION OF SMART PORTABLE ROASTER TECHNOLOGY BASED ON USER PERCEPTION USING THE TECHNOLOGY ACCEPTANCE MODEL APPROACH

ABSTRACT

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The growing coffee roasting community in Indonesia has driven innovation in Internet of Things (IoT)-based coffee roasting machines, yet their adoption depends on acceptance by prospective users. The Smart Portable Roaster (SPR) G2 has been designed and built, but its design has not yet been validated against the needs of its target users. This study aimed to measure prospective users' acceptance of the SPR G2 based on the Technology Acceptance Model (TAM), to analyse the relationships among TAM constructs, and to determine the validation status of the design features and their improvement recommendations. A survey was conducted with 30 prospective users actively roasting coffee in the Special Region of Yogyakarta and its surroundings after an SPR G2 demonstration. The observed parameters were perceived usefulness (PU), perceived ease of use of machine operation (PEOU-M), perceived ease of use of the app interface (PEOU-A), and behavioral intention (BI), measured with a 1–5 Likert-scale questionnaire and three open-ended questions. Data were analysed using validity, reliability, Shapiro-Wilk normality, and Spearman correlation tests, together with content analysis. PU was in the very high category (4.35), while PEOU-M, PEOU-A, and BI were in the high category (4.14; 4.08; 3.93). Four of the five hypotheses were supported with moderate correlations (r = 0.407–0.486), whereas the relationship between PEOU-A and BI was not significant (r = 0.265). The main concerns of respondents were cost (24% of responses) and a preference for manual control or offline operation. Three of the six design features were validated, while the other three were conditionally validated, namely smartphone monitoring and control, the application interface, and price and system configuration; therefore, improvements were prioritised on reliable control when the network connection is lost and a modular configuration to reduce cost.

Keywords: Design validation, coffee Roasting machine, IoT, Technology Acceptance Model.

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