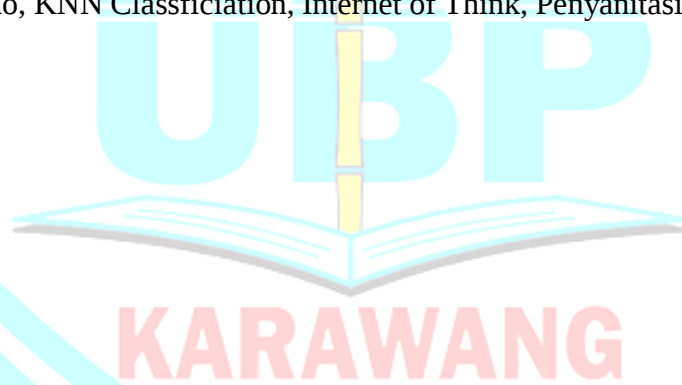


ABSTRAK

Kebanyakan alat hand-sanitizer diberbagai tempat (seperti rumah sakit, perusahaan, mall, dll) masih manual dan proses penggantian cairan pada wadah tamping terkadang sedikit membutuhkan banyak waktu dikarenakan tidak mendapatkan informasi terkait kapasitas cairan antiseptik pada alat. Berdasrkan masalah diatas, dibutuhkan alat handa sanitizer otomatis menggunakan sensor untuk mendeteksi sebuah objek berupa tangan dengan metode KNN berbasis *Internet of Thing*. Karena ketidaktahuan pengurus apakah cairan telah kosong atau banyak, maka pengurus harus mengecek kapasitas cairan pada alat *hand sanitizer* dan dapat membuang waktu jika selalu melakukan pengecekan kapasitas antiseptik. Penelitian ini bertujuan merancang suatu sistem monitoring kapasitas cairan pada alat hand sanitizer menggunakan *web* dan *database* sebagai penyimpanan data. Berdasarkan hasil pengujian, sensor *Load Cell* memiliki *error* sebesar 1,777%, sensor ultrasonik memiliki *error* sebesar 13.9 % sedangkan algoritma KNN berdasarkan k (3, 5, 7, 9, 11) masing-masing memiliki akurasi sebesar 1.00, 1.00, 0.78, 0.78, 0.78 berdasarkan perhitungan nilai terdekat. disimpulkan bahwa dapat mengugnakan nilai k terbaik menggunakan k = 3 dan k = 5.

Kata Kunci: Arduino, KNN Classficiation, Internet of Think, Penyanitasi Tangan, Mikrokontroler.



ABSTRACT

Most hand sanitizer dispensers in various places (such as hospitals, companies, malls, etc.) are still manual, and the process of refilling the liquid in the container can be time-consuming due to the lack of information regarding the antiseptic liquid capacity in the dispenser. Based on the aforementioned issue, an automatic hand sanitizer device is needed, utilizing sensors to detect an object such as a hand using the KNN method based on the Internet of Things (IoT). Due to the uncertainty of whether the liquid is empty or abundant, the personnel must check the liquid capacity in the hand sanitizer, which can waste time if done frequently, and the checking process can be time-consuming. This research aims to design a liquid capacity monitoring system for hand sanitizers using a web and database for data storage. Based on the test results, the Load Cell sensor has an error of 1.777%, the ultrasonic sensor has an error of 13.9%, while the KNN algorithm with k values of (3, 5, 7, 9, 11) has accuracies of 1.00, 1.00, 0.78, 0.78, and 0.78, respectively, based on the nearest neighbor calculation. It is concluded that the best k values to use are $k = 3$ and $k = 5$.

Keyword: Arduino, KNN Classification, Internet of Things, Hand Sanitizer, Microcontroller.

