

INTISARI

WORK FROM HOME PERSONAL ASSISTANT AND MONITORING MENGGUNAKAN BLYNK BERBASIS ARDUINO UNO DAN ROBOTDYN MEGA WIFI

Mochammad Abdulloh Nurhasan Satryo Budi Utomo
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Pada masa pandemi *Coronavirus Disease (Covid-19)* saat ini yang seiring berjalannya waktu semakin meningkat angka positif penyebarannya, sehingga mengharuskan pegawai untuk melakukan pekerjaan kantornya di tempat tinggal masing-masing namun dengan tetap dibawah pengawasan perusahaannya. Maka dari itu, untuk memudahkan pegawai yang sedang bekerja dari rumah (*Work From Home*), serta perusahaan dalam melakukan pengawasan terhadap kondisi kesehatan dan kinerja pegawainya. Penulis merancang sebuah sistem yang diberi nama sebagai “*Work From Home Personal Assistant and Monitoring Menggunakan Blynk Berbasis Arduino Uno dan Robotdyn Mega WiFi*”. Sistem tersebut memiliki fungsi sebagai berikut: penunjuk waktu (hari, tanggal, dan jam) serta *alarm* (jam masuk kerja, makan siang, dan pulang kerja) menggunakan RTC Module DS3231, pemberi saran menu makan, *monitoring* pegawai menggunakan beberapa modul dan sensor yang menjalankan fungsi sebagai berikut: presensi pegawai dengan menggunakan RFID RC522 dengan jarak efektif 0-2 CM, informasi suhu ruangan pegawai dengan rata-rata *error* 3.87% dan kelembapan ruangan pegawai dengan rata-rata *error* 1.31% menggunakan sensor DHT11, informasi suhu tubuh pegawai dengan menggunakan sensor DS18B20 dengan rata-rata *error* 1.31%, penunjuk informasi jarak tubuh dari layar monitor menggunakan Sensor Ultrasonik HC-SR04 dengan rata-rata *error* 0.41%, dan Buzzer sebagai bunyi tanda pengingat maupun berhasilnya fungsi perangkat. Hasil data dari sistem tersebut akan ditampilkan melalui dua buah LCD 20x4 I2C dan terkirim secara *Near Real-time* ke *Blynk.Console* dan *Blynk.Apps* perusahaan. Hasil analisis kinerja berupa QoS (*Quality of Service*) terhadap sistem dengan menggunakan parameter *delay* dengan rata-rata 66.8875ms, *throughput* dengan rata-rata 11.883 Kbps dan rata-rata persentase 0.419%, dan *packet loss* dengan rata-rata 0.29%. Hasil pada parameter *delay* dan *throughput* berkategori “Sangat Memuaskan” berdasarkan standarisasi TIPHON.

Kata kunci: *Covid-19, Work From Home, Personal Assistant, Monitoring, Blynk.*

ABSTRACT

WORK FROM HOME PERSONAL ASSISTANT AND MONITORING BASED ON ARDUINO UNO AND ROBOTDYN MEGA WIFI USING BLYNK

During the current Coronavirus Disease (Covid-19) pandemic, which over time has increased the number of positive spreads, thus requiring employees to do their office work in their respective places of residence but still under the supervision of their company. Therefore, to make it easier for employees who are working from home (Work From Home), as well as companies in supervising the health conditions and performance of their employees. The author designed a system called "Work From Home Personal Assistant and Monitoring Using Arduino Uno-Based Blynk and Robotdyn Mega WiFi". The system has the following functions: showing time (day, date, and hour) as well as alarms (hours for work, lunch, and after work) using the RTC Module DS3231, providing food menu suggestions, monitoring employees using several modules and sensors that run functions as follows: employee attendance using RFID RC522 with an effective distance of 0-2 CM, employee room temperature information with an average error of 3.87% and employee room humidity with an average error of 1.31% using a DHT11 sensor, information on employee body temperature using sensor DS18B20 with an average error of 1.31%, indicating body distance information from the monitor screen using the Ultrasonic Sensor HC-SR04 with an average error of 0.41%, and a buzzer as a sound reminder as well as the success of the device function. The results of the data from the system will be displayed via two 20x4 I2C LCDs and sent in Near Real-time to the company's Blynk.Console and Blynk.Apps. The results of the performance analysis are QoS (Quality of Service) on the system using delay parameters with an average of 66.8875ms, throughput with an average of 11.883 Kbps and an average percentage of 0.419%, and packet loss with an average of 0.29%. The results on the parameters of delay and throughput are categorized as "Very Satisfactory" based on TIPHON standardization.

Keywords: Covid-19, Work From Home, Personal Assistant, Monitoring, Blynk