

RANCANG BANGUN PLATFORM BILIK WICARA PASIEN TUBERKULOSIS

Abiel Zulio Maseida
19/443602/TK/48798

Diajukan kepada Departemen Teknik Nuklir dan Teknik Fisika Fakultas Teknik
Universitas Gadjah Mada pada tanggal 31 Juli 2023
untuk memenuhi sebagian persyaratan untuk memperoleh derajat
Sarjana Program Studi Teknik Fisika

INTISARI

Pada tahun 2022, terdapat 500 ribuan pasien Tuberkulosis belum disembuhkan dan pemerintah ingin menyegerakan proses penyembuhan pasien tersebut melalui PERPRES No. 67 tahun 2021. Pasien tuberkulosis memiliki perbedaan karakter suara wicara dengan pasien sehat. Perbedaan tersebut dapat digunakan sebagai masukan awal dari sebuah sistem untuk membantu memantau perkembangan kondisi pasien melalui sistem akuisisi, pengolahan, dan penyajian data wicara berupa bilik wicara. Penelitian ini merupakan rancangan awal dari sistem secara keseluruhan berupa platform dengan sajian fitur kuantifikasi kondisi medis dan suara wicara pasien selama proses pengobatan.

Platform dirancang dan didesain dengan pendekatan *work-centered design* bernama UFuRT (*user, function, representation, dan task analysis*). Fungsi dan fitur platform dikaji berdasarkan evaluasi studi literatur dan analisis pengguna lalu disajikan melalui analisis representasi dan diuji kedayagunaannya melalui analisis tugas menggunakan asesmen beban kerja NASA Task Load Index.

Penelitian menghasilkan rancangan platform dengan sajian fitur meliputi pencarian pasien menggunakan nomor rekam medis dan nama pasien dan peninjauan indikator perawatan pasien meliputi parameter tinggi badan, berat badan, indeks massa tubuh, frekuensi puncak, intermodulasi distorsi, lesi paru, dan skala sesak. Rancangan platform teruji kedayagunaannya secara aplikatif menggunakan laman situs dengan beban kerja rendah bernilai rata-rata 37,095 dan durasi waktu penggunaan selama rata-rata 16,83 detik.

Kata kunci: platform, bilik wicara, tuberkulosis, suara wicara

Pembimbing Utama : Ir. Sentagi Sesotya Utami, S.T., M.Sc., Ph.D., IPU.
Pembimbing Pendamping : Zulfi Aulia Rachman, S.T., M.Eng.



TUBERCULOSIS PATIENT SPEECH CHAMBER PLATFORM

DEVELOPMENT

Abiel Zulio Maseida
19/443602/TK/48798

Submitted to the Departement of Nuclear Engineering and Engineering Physics
Faculty of Engineering Universitas Gadjah Mada on July 31, 2023
in partial fulfillment of the requirement for the Degree of
Bachelor of Engineering in Engineering Physics

ABSTRACT

In 2022, there were 500 thousand tuberculosis patients yet to be cured, and the government aimed to revitalize the patient healing process through Presidential Regulation No. 67 of 2021. Tuberculosis patients exhibit distinct speech characteristics compared to healthy individuals, and these differences can serve as initial input for a system designed to aid in monitoring the patients' progress using a speech data acquisition, processing, and presentation chamber called the speech chamber platform. This research constitutes the preliminary design of the entire system, encompassing a platform with features for quantifying medical conditions and patient speech during the treatment process.

The platform was designed and developed using the work-centered design approach called UFuRT (user, function, representation, and task analysis). The platform's functions and features were examined through a literature review evaluation and user analysis, followed by representation analysis, and its utility was tested using task analysis through the NASA Task Load Index workload assessment.

The research yielded a platform design with featured components that encompass patient search using medical record numbers and patient names, as well as a review of patient care indicators, including height, weight, body mass index, peak frequency, intermodulation distortion, lung lesions, and dyspnoea scale. The platform's design was practically tested for its usability through a website with a low workload, with an average workload score of 37.095 and an average usage duration of 16.83 seconds.

Keywords: platform, speech chamber, tuberculosis, speech sound

Supervisor : Ir. Sentagi Sesotya Utami, S.T., M.Sc., Ph.D., IPU.
Co-supervisor : Zulfi Aulia Rachman, S.T., M.Eng.

