Unified Indexing pada Sistem Temu Kembali Informasi Multimedia = Unified Indexing in Multimedia Information Retrieval System

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Abstrak

Dewasa ini, banyak sekali ketersediaan data multimedia yang direkam dalam bentuk digital seperti teks, citra, audio dan video serta tersimpan dalam berbagai database. Data multimedia tersebut dapat diakses dengan menggunakan mesin pencari seperti Google, Yahoo, dan Bing. Namun, hasil pencarian dari mesin pencari tersebut belum bisamenghubungkan berbagai media kedalam suatu konsep yang saling terkait. Hal ini menyebabkan hasil penetapan relevansi (relevance judgement) menjadi tidak optimal. Disisi lain, mesin pencari hanya bisa menerima kueri tipe teks atau citra, seperti Google. Oleh karena itu, dibutuhkan suatu mekanisme identifikasi data multimedia secara terpadu (Unified Indexing) dan Query Interface yang bisa menerima berbagai tipe media.

Proses Unified Indexing terdiri dari beberapa tahapan: (1) Membangun testbed; (2) Perancangan Unified Indexing; (3) Implementasi; (4) Ujicoba dan Evaluasi. Perancangan Unified Indexing terdiri dari: Modul Mono Modal Indexing, Modul Conceptdan Modul Search. Modul Mono Modal Indexing melakukan pengindeksan masing-masing tipe media. Sedangkan ModulConceptmelakukanpemberiankonsepkepada data multimedia dengan proses naming. Selanjutnya, Modul Search melakukan pencarian informasi dengan berbagai tipe kueri multimedia (QueryInterface). Ketiga modul tersebut selanjutnya diimplementasikan pada tahapan implementasi. Tahapan ujicoba dan evaluasi dibangun berdasarkan dua skenario, yaitu sistem yang belum menggunakan UnifiedIndexing dan sistem yang telah menggunakan UnifiedIndexing.

Hasil ujicoba memberikan hasil peningkatan perolehan informasi data terambil untuk kueri teks 77%, kueri citra 60%, kueri audio 62% dan kueri video 60%. Sedangkan rata-rata perolehan data relevan untuk kueri teks 81%, kueri citra 85%, kueri audio 84% dan kueri video 85%.
.....Today, a lot of recorded multimedia data available in digital form such as text, image, audio and video stored in various databases. Multimedia data could be accessed by using search engine such as Google, Yahoo, and Bing. However, the result has not been able to link variety of media into an interrelated concepts. This causes the results of relevance judgement is not optimal. On the other hand, the search enginesuch as Google could only received query type likes text or image. Therefore, we need a mechanism of identifying multimedia data in integrated way (Unified Indexing) and Query Interface that can accept various type of media.

Unified Indexing and Query Interface processes consist of several stages: (1) Establish a testbed as experimental data; (2) Design of Unified Indexing; (3) Implementation; and (4) Test and Evaluation. The design of Unified Indexing comprises of: Mono Modal Indexing Module, Concept Module and Search Module. Mono Modal Indexing Module performs indexing of each type of media. Concept Module conducts giving concept of multimedia data with naming process. Search Module searchs information with various

type of multimedia queries (Query Interface). The modules are implemented in the Implementation Stage. Test and evaluation stage built on two scenarios: a system that is not use Unified Indexing and system that use Unified Indexing

The results showed that by using the Unified Indexing, multimedia data residing on the same concept provides a better retrieval results:using query by text improve by average is 77%, by image is 60%, by audio is 62% and by video is 60%. Furthermore, the increase of relevant data using query by text is 81%, by image is 85%, by audio is 84% and by video is 85%.