

# BrainTag

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## **Project Statement:**

BrainTag system allows real-time tagging of media content based on brainwave emotion recognition. It brings us closer to understanding how we feel and interact with the digital world we are embedded within and allows us to receive more accurate and direct feedback to what we experience in the abundance of media we encounter.

As we are witnessing content explosion following digital transition which is leading to information becoming rapidly accessible, much effort is devoted into information classification and prioritization. Intensive studies in the field of humanities explore how generations of people adapt to frameworks imposed by current technologies where information obtained through social networking is of great value. The way we navigate the world around us and relate to each other may or may not be truly changing, but systems such as BrainTag will allow us to adapt technology to our needs by accurately analyzing unambiguous data that represents our media experiences.

BrainTag may be implemented and adapted to various types of online media content and social networking: streaming media, eBooks, online dating communities to name a few, or any other area where user experiences can be evaluated and shared. Personal interface for BrainTag's human-computer interaction is achieved by wearing a unobtrusive wireless neuro-headset, (much like a pair of headphones) which is connected to your personal computer via Bluetooth.

BrainTag detects user's emotional status through neuro-sensing algorithms and records (in real-time) levels of four most prevalent types of emotions: happiness, sadness, anger and fear. Depending on application and specific needs, it may be extended to account for wider range of emotions particular to the needed application.

Recorded data is then used to tag media content in several ways:

- In the case of streaming media applications such as movies

and music:

- The system will observe peaks for each emotion and tag content accordingly at temporal positions where the peaks occurred.
- The system will calculate average levels of each emotion and tag the content as a whole giving a generalized description of your experience.
- In cases of static media or applications that offer a review of the user's experience (such foods, places, travel) the content will be tagged as an overall inclusive review.
- Combination of the first two approaches can be used when content and communication are multifaceted. This is often the case in social networking settings where two-way communication happens instantaneously, in which real-time emotive tracking is applicable but, there may also exist static content in which case the experience may be tagged as a whole.

Furthermore, data from all users is collected, analyzed statistically and used to describe content.

By harvesting statistical information, BrainTag will not only allow users to browse online media databases more efficiently based on the tags, but will also automatically rank search results and make suggestions if wanted or needed. In certain cases, users may be given a chance to anonymously share personal information such as age, sex, location or occupation with BrainTag, and this will allow others to take advantage of powerful filtering of statistical information and tagged content stored within the system.

BainTag is a unique and versatile application offering many advantages. BrainTag may be specified and implemented into almost any online application, creating a higher more accurate and expansive level of interaction that what the current status of user review currently offers. BrainTag can also provide feedback to the producers, directors, artists who develop these applications giving more critic to what is made and produced . Another possibility of

Braintag is its ability to inform marketing and advertising industry. This will more specifically address the demographic and audience reached. Rather than just blind calls, emails, ads advertisers and marketers will be given the necessary information to achieve better result by making sure the exposure it reached to those whole actual want and will use it.

As with all things in this day of online living, privacy is a primary concern to the user. Baintag will allow for the user to control privacy settings and functionality. Allowing only the information they wish to be made public out into the streaming world. Some users may want to use Braintag as a more personal device. Creating a better understanding of the way they feel and respond to certain types of media. While, others will want to dive in and be a part of a collective movement to explores others emotive finding as well as there own. BrainTag will provide both options as well as level in between.

BrainTag offers an unparalleled evolution to the current rating, review and feedback paradigm currently in place. The ability to extend beyond our conscious idea of how we feel and what instigates these feelings. BrainTag's evolution will provide us with the ability to look deeper into ourselves as well as the digital world around us allowing us to find things faster and more specific to our taste and understand our digital cultural in the future to come.

### **Project Details:**

BrainTag work by referencing current emotive levels with the levels learned by utilizing emotion tests. The program needs to find the specific levels of what make the user experience happiness, sad, anger and fear. After the program has learned which emotions align with the appropriate mind maps these are mapped to the tags. The user then watches a movie, listens to a song or reads a book, the time component is registered from the media and syncs to the tag. This is saved so to be uploaded, reviewed or critiqued.

We have utilized MAX MSP to prototype the workings of BrainTag.

MAX listens to the data feed coming from the neuroheadset, it parses the frequency data into figures and lists which are then translated into the appropriate categories. The amplitudes of each frequency are measured and recorded in relationship to their previous levels as well as their relationship to other amplitudes of appropriate frequencies. These levels are then crossed referenced with the emotive algorithm to determine the correct "tag". This data is collected and stored or uploaded to the appropriate application in the form of XML strings.