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Dead and living yeast cells analyzer using electrical force induction

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The present project had been a collaborative project fully supported from Singha Beverage Company to invent the novel equipment that could both determine dead and living cells with the rapid real-time analysis for on-site operation and most importantly offer the prospect of effective separation of dead vs. live cells. We employed the principle of cell polarizations in AC non-uniform electric fields with the exact theoretical calculation of the lower critical frequency (LCF) analyzed using the RC model for a spheroid to separate dead and living yeast cells. The successful identification and separation of live vs. dead cells was achieved by a combination of a sequential signal generator (SSG) (to be patented) equipped with a tablet touch screen computer interface for prompt commands. Dead and living yeast cells were completely separated by tuning electric field frequencies at the unique value (concealed). Percentages of both dead and living cells were analyzed throughout the image processing protocol.

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