Automatic Adjusting Device for Thai Musical Instrument

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Thai music is one of the most significant heritages of the royal Thai Kingdom, inherit from our ancestor for more than a thousand years. The music reveals special uniqueness and identity. FIBO realizes its responsibility to perform R&D and invent technology to maintain this national heritage. Her Royal Highness Princes Sirinthorn graciously led a team to study and establish a standard of frequencies of Thai musical instrument. Such standard enormously yield benefit to Thai musical community in maintaining "exact" sound of their instrument.

Our particular interest is an inability to detect and measure frequencies of Thai traditional xylophones. Current techniques could not be use since the sound wave of xylophones occur within very short time (≤30 ms.). In addition, the wave is quite fluctuated and coupled with noises, especially at very low and high frequencies. Available frequency adjusting devices for western musical instruments are unable to deal with such noises.

We implement the "Zoom Analysis" method to determine the frequencies of music. This method is suitable to measure incidental wave-signals at high frequencies. The frequencies are intentionally reduced for ease in signal period finding. This is analogous to the way we amplify, to search for details, in images. The resulting measured frequencies will be then compared with standard values. This new adjusting device promotes the convenience among Thai musical artists. We highly appreciate the research funding from the Foundation for Research in Information Technology (FRIT).

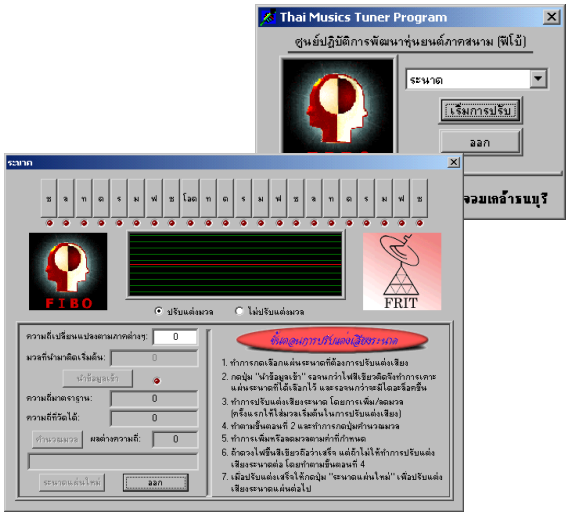

Fig.1 Graphic User Interface

Fig.2 Research Platform at FIBO

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