

## **Abstract**

Nowadays, kind and usage of SMS information service is increasing. On complex computation problem like public transportation route searching, the increase of SMS information service usages imply significantly to increasing the workload of SMS information service ESME (*External Short Message Entity*). ESME might reply the request unresponsively because this issue. To anticipate this increasing of request, multi-threaded approach can be used on ESME development.

With multi-threaded system, overall performance of ESME will increased. This can be seen at the decrease of response time value because queue time value is decreasing. The decrease of queue time value happens because the multi-threaded system can process several SMS request at same time. Main weakness of multi-threaded system is the increase of process time value because the multi-threaded systems will process SMS request with interleaving method. This increase of process time value will not effect the response time value significantly because queue time value more dominant when determining response time value.

Keywords: multi-thread, response time, process time, queue time