Motility (movement agility) of sperm is one of factors in determining the quality of sperm. Spermatozoon motility is known through microscopic sperm test. Today’s expensive unportable laboratory microscopes used as a sperm test device as a part of CASA (Computer Assisted Sperm Analyzer). This study propose sperm analyzer system using a portable LED microscope based on bright field illumination method. This lighting has a better point compared to phase contrast methods in CASA’s system, that is LED emission spectrum contains no infrared radiation, which would shorten the life time of spermatozoon. The energy source of LED are batteries so the sperm analyzer system is easy to carry. The tracking method used in the previous study has weakness which occur when the sperm movement being investigate collide with other sperm or a debris. In this study, Mean Shift is used as the tracking method of the spermatozoon movement. Sperm motility is identified based on linearity and movement speed (LIN, VCL, and VSL) into 4 classes. Two kinds of data were used: spermatozoon motility video test belong to the collection of UNSW Embryology and cattle sperm video data recorded using the proposed microscope set up. The tracking result of eight spermatozoon for UNSW Embryology video collection were 62.5% of class 1, 12.5% of class 2, 12.5% of class 3 and 12.5% of class 4. The results of tracking cattle spermatozoon recordings were of class 1.

Keywords: Sperm, Spermatozoon tracking, Mean Shift, VSL, LIN