In the modern society of Big Data, data are messy and complicated. It is critical to engage students to experience the entire process of statistical investigation as early as in an introductory course. The strategy of using hands-on activity is one of such strategies that allow students to experience the entire process of statistical investigation starting from defining problems, collecting data to reporting and presentation. However, such a process often takes long time, as a result, they are difficult to conduct in limited class time periods. This presentation shares an active learning environment using real-time hands-on activities conducted by students. Some activities will be demonstrated in this presentation. (Received August 28, 2018)