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OBJECTIVE

To develop a simulation environment on PowerWorld with operational scenarios to exercises. Which helps students in relate courses to learn about real time power systems operations.

BACKGROUND

In order to improve system reliability, utilities energy management systems on dedicated computers at the control center. Our team is designing a similar system that can be used in classes.

VALUE PROPOSITION

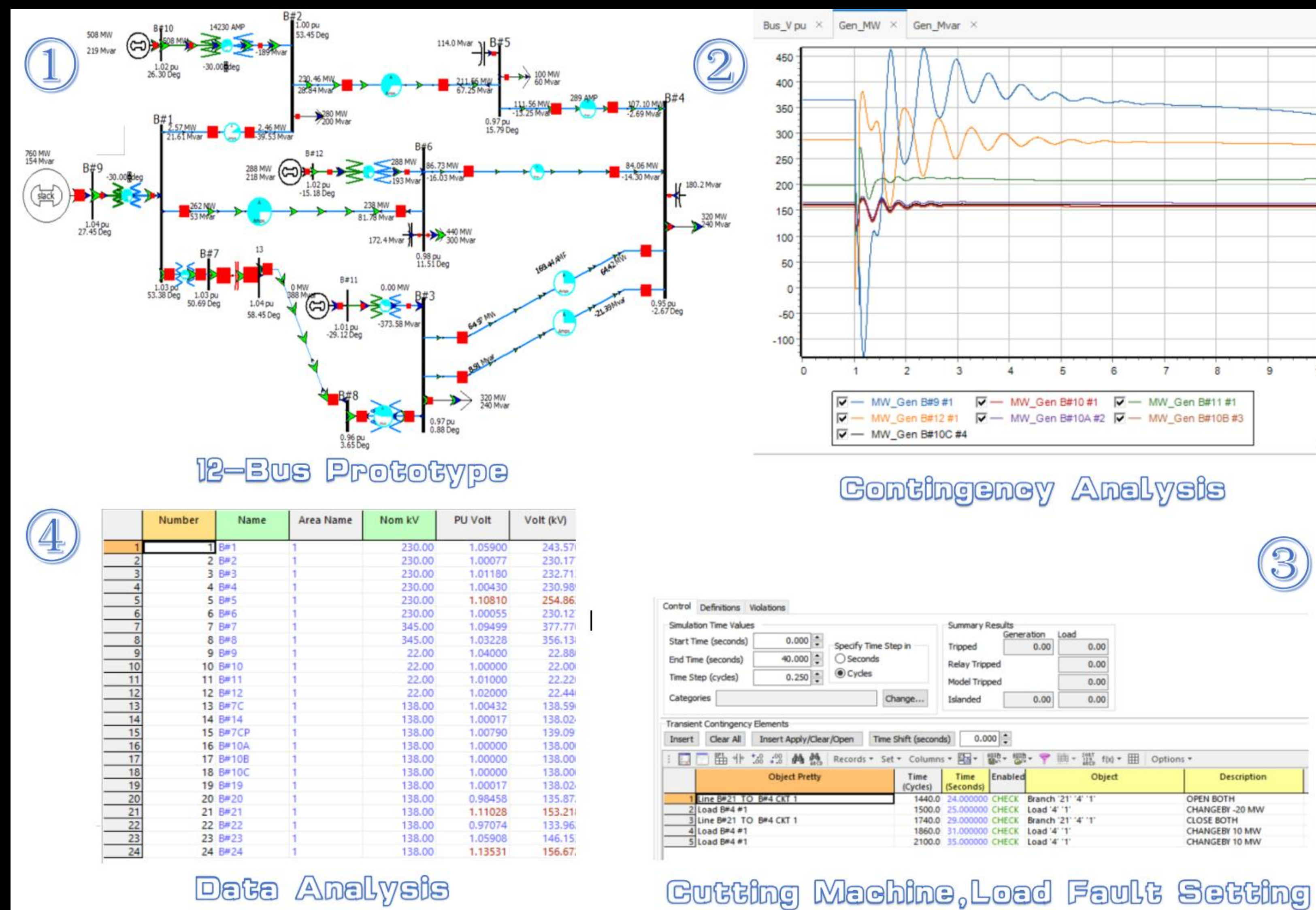
Balance the supply and the load while maintaining system frequency within acceptable levels through autonomous functions and human operator action.

Represent system response during steady-state and disturbance scenarios

This helps students learn about

- Actions operators can take to resolve problems
- Methods for improving power system reliability and resilience.

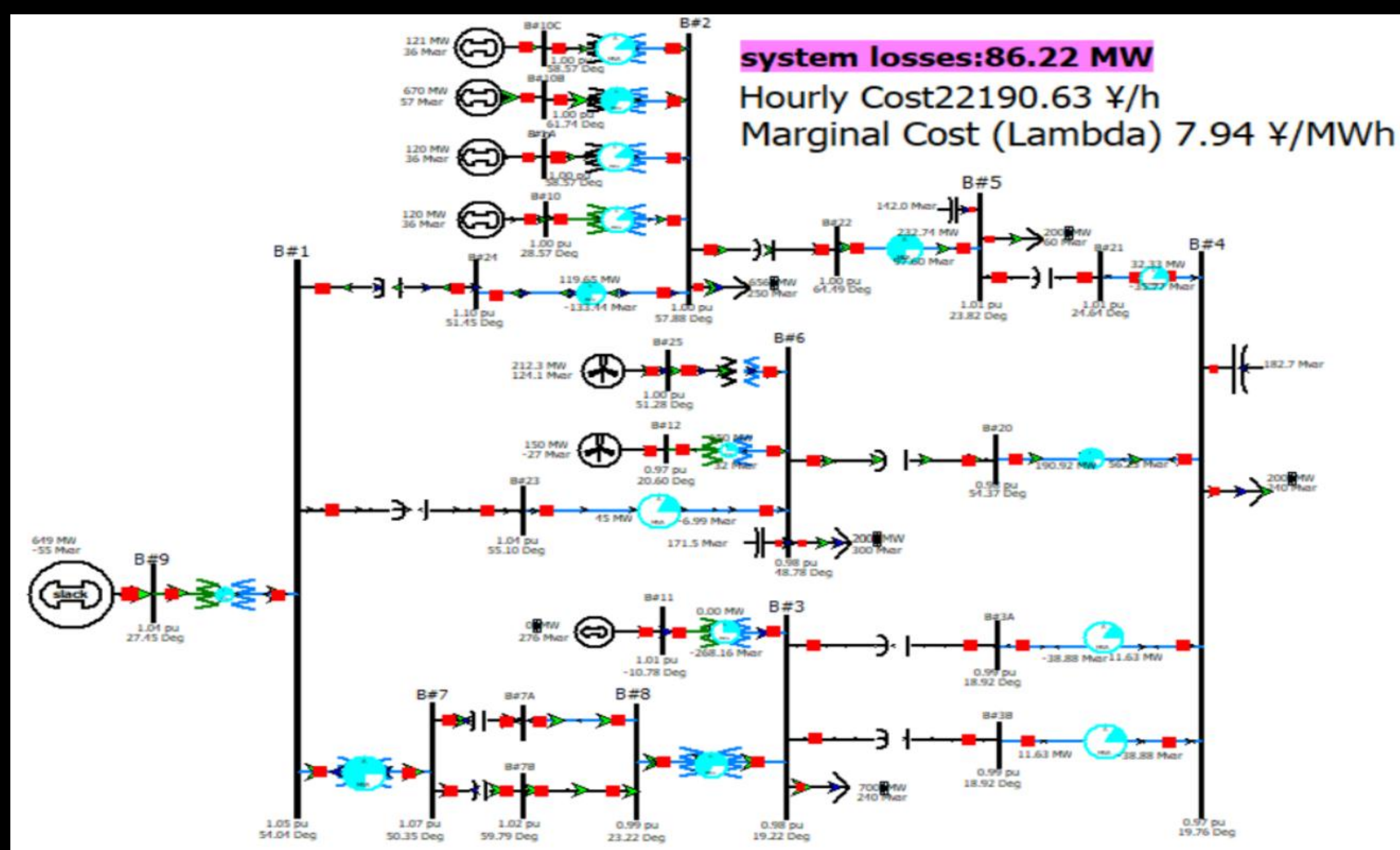
CONCEPT DEVELOPMENT



VALIDATION

Requirement	Test Subject	Test Date	Result	Recommendation
Collect the data once close a transmission line, a capacitor or a transistor	Full system	12/11/2021	Successful	From the data we collect, we did some adaptation to the system and add three more generators in
Contingency analysis	Full system	1/5/2021-1/15	Successful	From this analysis, we learn some basic knowledge about contingency analysis and find that our system is stable now
HMI built	Full system	2022/2/2	Successful	We built HMI within PW
System Cost calculation	Full system	2022/3/2-3/7	Successful	Atly, we have calutated our system
Make system showing in a better way	Full system	2022/4/10-4/11	Successful	Shown in better way, which is con
Contingency analysis(2)	Full system	2022/4/5-4/6	Successful	From this analysis, we learn some basic knowledge about contingency analysis, also this is for students learn this system

THE FINAL DESIGN



CONCLUSIONS & RECOMMENDATIONS

- Modify IEEE 12-bus system model.
- Create a document to help students using PW learn this system
- Explore hysical and economic feasibility of this system.

KEY REQUIREMENT

- Using Powerworld , to design, debug the system and conduct different scenarios
- Using Excel and Word to make a chart and record data.