


# Chapter 8

## Enhancing User Experiences in Cyber-Physical Systems for Real-Time Feedback and Intelligent Automation

**Vishakha Kuwar**

 <https://orcid.org/0000-0003-1764-2475>

*Centre for Online Learning, Dr. D.Y. Patil Vidyapeeth, India*

**Yatharth Srivastava**


 <https://orcid.org/0009-0003-1134-4722>

*The LNM Institute of Information Technology, India*

**Sonali Gaur**


*EMPI Business School, India*

**Amit Yadav**

 <https://orcid.org/0009-0006-3769-4773>

*Banarsidas Chandiwala Institute of Professional Studies, India*

**Pratibha Bhide**

 <https://orcid.org/0009-0002-2308-8781>

*MGM University, India*

**Shitiz Upreti**

*Maharishi Markandeshwar, India*

### ABSTRACT

*The hominize of cyber-physical systems (CPS) has create evolution in the user experiences for real-time feedback and intelligent automation. The study explores the advanced sensors and monitoring technologies in cyber-physical systems offer meaning to the user interactions with products, trying massive responsive and adaptable environments. CPS is facilitating the direct feedback and achieve the product usage patterns to discover and implement value-adding features is not*

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*explicitly request but would significantly appreciate. The chapter is also discussing these technological advancements. The study illustrating safety and convenience. The chapter is also highlighting -the transformative impact of CPS on product interaction and user satisfaction.*

## **1.INTRODUCTION**

Cyber-Physical Systems (CPS) amalgamates sensors and real-time feedback and enhance user experience and intelligent automation across the various industries. Systems plays vital role in different sectors optimize resource management and yield through precise monitoring (Wati K., 2024). CPS leverage advanced level sensors and real-time feedback mechanisms and provide a level of interaction and responsiveness unattainable earlier. The product teams enhance the direct feedback from users but also to gain insights for the products which are used in everyday scenarios. When monitoring user interactions and behavioural patterns, CPS facilitate the continuous improvement of products functionality and overall value from the user point of view (Martinez C.,2023).

The extensive application of fundamental components of cyber-physical systems (CPS) like memory units, sensors, storage devices, and computing units, etc. Notably, the energy and utility industries are expected to drive substantial demand for CPS for smart grid technology. CPS play a vital role in advancing autonomous vehicles and intelligent transportation systems. The increasing focus on boosting electric vehicle sales is anticipated to propel the demand for CPS. The embeds of CPS across these sectors is poised to enhance efficiency, safety, and innovation. The typical Cyber-Physical System framework as visible in the Figure 1 below:

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