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IMPACT OF DIGITAL TECHNOLOGIES ON PERFORMANCE OF POWER DISTRIBUTION SYSTEM

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Abstract- Digital Technology (DT) plays an essential role in Distribution System (DS). As the DT, include three basic terms viz: information technology (computer and software), media technology (image, audio and video) and communication technology (connecting methods). The objective of ICT in Power Distribution System (PDS) is to improve quality of data representation and performance analysis. It is an important and mostly used scheme of connection in DS. In real time, DS has high R/X ratio due to which the conventional method are not suitable for the analysis. The analyses of PDS are done by the use recent method such as Forward-Backward sweep. In this paper, the role of DT is focus on Power distribution system.

Keywords: DT, PDS, Forward-Backward sweep method.

1. INTRODUCTION

Digital Technology (DT) is a system, which works either by linking or by cabling. The development in DT is significant including microcomputers and worldwide search engine that allows content searches on remote hosts, the invention of the Internet browser as a user-friendly interface for navigating the WWW, and the development of social media that has exponentially escalated the penetration of DT in our daily life (Hill & Shaw, 2011; Lanfranco, 2008; Watling & Rogers, 2012). DT has impacted almost all human service disciplines, such as counselling (Chester & Glass, 2006; Richards & Vigano, 2013), health care services (Halford, Obstfelder, & Lotherington, 2009; Poon et al., 2006), education (Fu, 2013; Markauskaite, 2003), and more recently social work (Giffords, 2009; Reamer, 2013) [1]. As DT include three basic module which are briefly demonstrated in figure 1. The three basic modules explained briefly as under:

1.1 Media technology: In this technology, the aspirants express their idea in three modes as image, audio and video. Image plays an important role for representation and analysis of response for the researcher. Audio and video are widely used by the educationist, administrator and social people.

1.2 Communication technology: The role of communication technology becomes everywhere, as it is difficult to survive without communication technology. This technology not only to bind the people with each other, but plays an essential role in various aspects of life such as security, automatic system, knowledge up gradation etc.

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1.3 Information Technology: In this technology, computer and software combined used to achieve the desired response. There are numerous areas in Electrical especially in power system where information is measure for stability to command the protecting device. As the power system is generally divided into three categories as generation, transmission and distribution. Several realist problems tested using computer software.

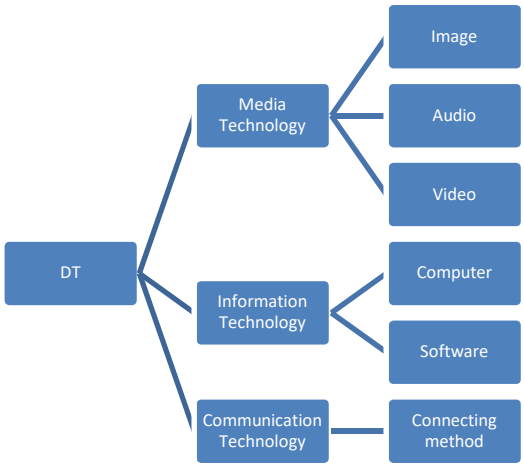

Figure 1: Basic module for information and communication technology

Therefore, researchers are keen to work on distribution system instead of transmission. The general structure of power system is illustrated in figure 2.

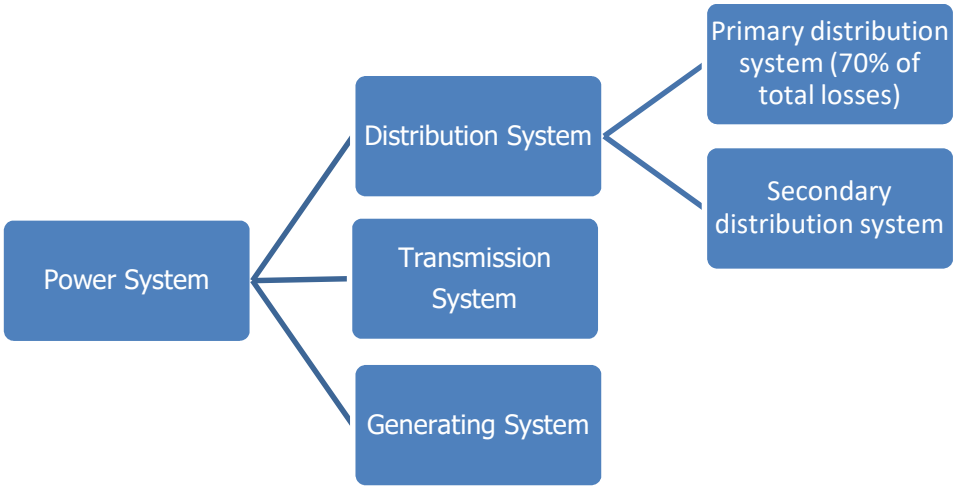

Figure 2: General structure of power system

As maximum power losses occurs in distribution system, hence the mostly used as well as era for researcher is Power distribution system. The classification of distribution system in scheme of connection is categories as Power, ring main and interconnected system. The basic structure as per scheme of connection in distribution system is shown in figure 3.

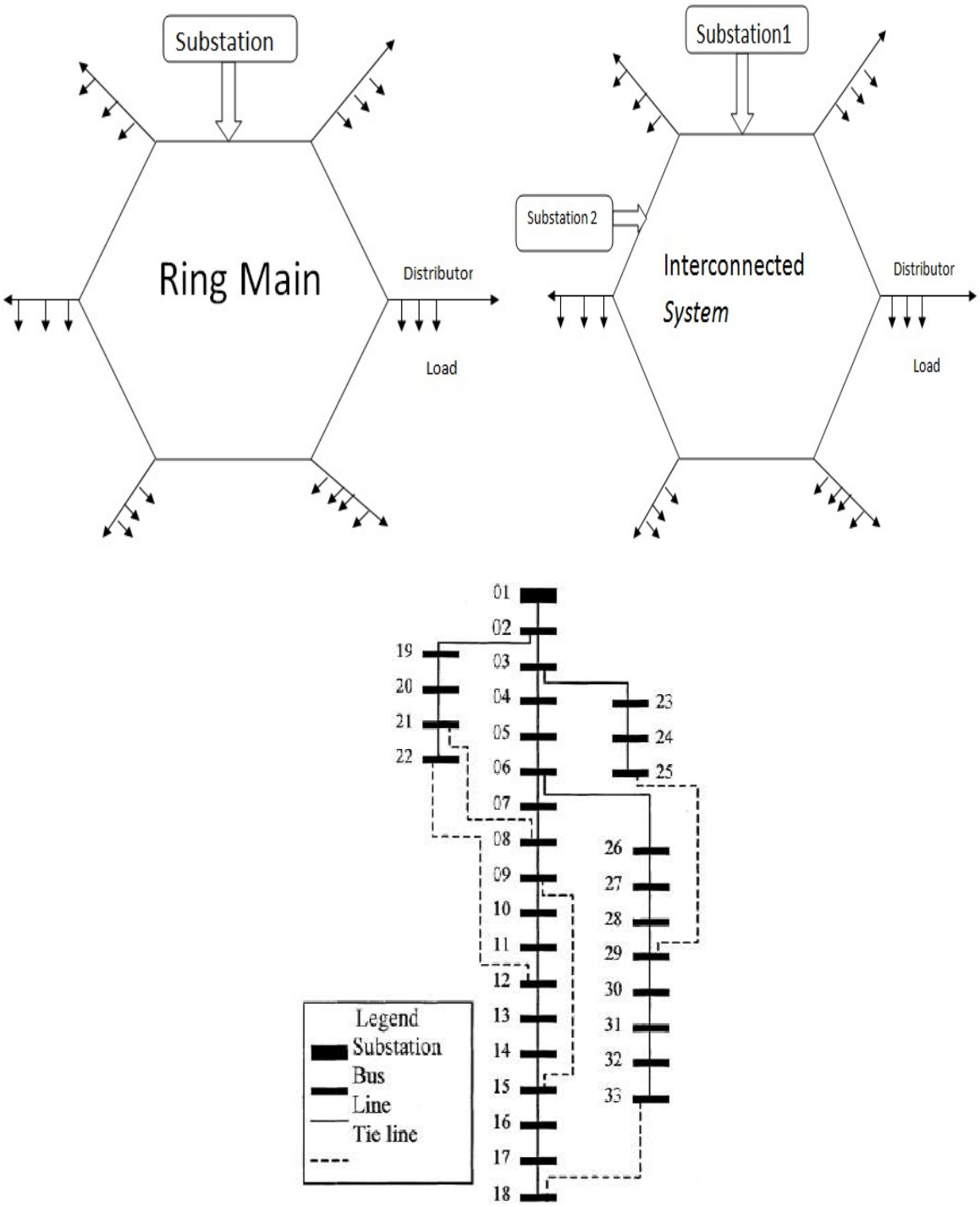

Figure 3: Scheme of connection of distribution system

The literature survey for Power distribution system is as under:

LF analysis in RDS has categorized into two forms:

- ✓ Balanced LF:
  - Deterministic LF [3-33]
  - Probabilistic LF [16-23]

- ✓ Unbalanced LF:
  - Deterministic LF [3,6,8]
  - Probabilistic LF [24-25]

2. Role of DT (Digital Technology) in Power distribution system:

The role of information and communication technology in Power distribution system is demonstrated in figure4. Each role, which is illustrated in figure 4, is explained briefly as under:

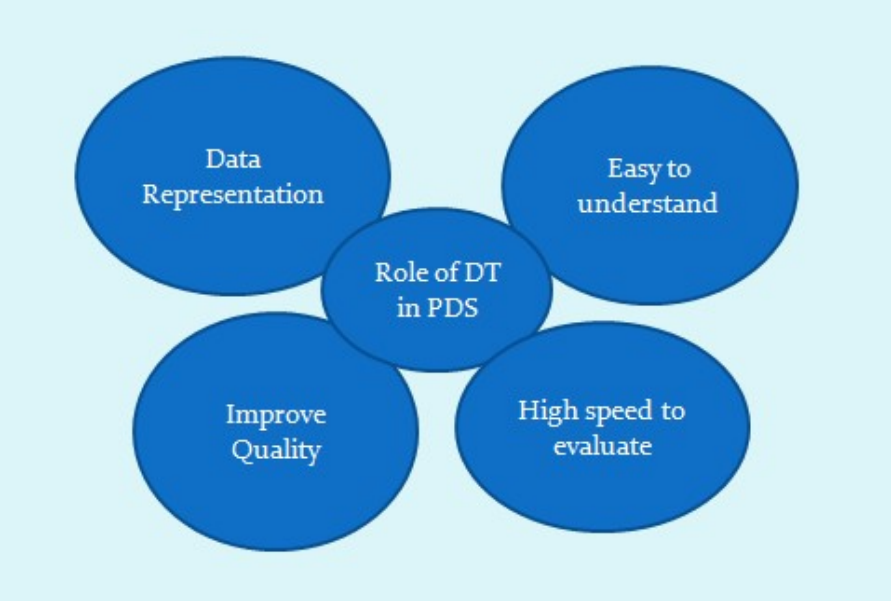

Figure 4: Role of information and technology in Power distribution system.

2.1 Data representation: The standard data from IEEE for test system gives practical platform for the researchers. The representation of input as well as response data plays an important role for the researchers and reviewer to understand the feasibility of the proposed problem.

2.2 Improve quality: The role of information and technology in Power distribution system to improve the quality of the system. As ICT include the use of computer and software which improve the quality of the system by use of optimization technique.

2.3 Speed: Speed is a one of the comparative aspect in research area. Many researchers have compared the result analysis of speed in research proposal. Today it is deciding factor in research of engineering and other related research area.

2.4 Easy to understand: The researchers can easily understand the data represented by the use of ICT. The quality of research plays vital role but its representation also becomes essential factor. Therefore, ICT has vast role in Power distribution system.

Conclusion: The role of information and communication technology in every field of research such as education, medical, social, administrator and engineering, especially in Power distribution system as explained in this paper.

Here, in this paper, the basic module of ICT is demonstrated and briefly explained. The research become more effective by the use of ICT.

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