1. Record Nr. UNINA9910483254503321

Autore	Riurean Simona Mirela
Titolo	Application of Visible Light Wireless Communication in Underground Mine / / by Simona Mirela Riurean, Monica Leba, Andreea Cristina Ionica
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2021
ISBN	3-030-61408-5
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (XXIII, 226 p. 157 illus., 143 illus. in color.)
Disciplina	002
Soggetti	Telecommunication Computer networks Microwaves, RF Engineering and Optical Communications Communications Engineering, Networks Computer Communication Networks
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Introduction -- Optical wireless communication -- Components of a visible light communication system -- VLC for underground positioning and monitoring system -- Underground positioning and monitoring system implementing with VLC embedded -- Conclusion.
Sommario/riassunto	This book provides a chronological literature review of optical wireless communication, followed by a detailed blueprint of a visible light communication (VLC) setup with the key characteristics of LEDs and photodetectors. Next, the optical channel impulse response and its description for different possible topologies is presented together with a description of the optical and electrical setup for both optical transmitters (oTx) and optical receivers (oRx). Different single carrier and multi-carrier modulations particularly applied in visible light communication setups are also presented. Both the optical and electrical modules of oTx and oRx are simulated and then prototyped and tested as embedded devices in an underground positioning and monitoring system for a continuous real time identification of the personnel on the main underground galleries where the illumination

network is already installed. Presents a comprehensive look at visible light communication technology, both in description and application; Shows where and how VLC has been launched on the market as an alternative or partner technology to the existing wireless communication technologies based on radio frequency; Includes special focus on underground positioning and monitoring with embedded VLC.