



PREMO

Publisher: PREMO S.L.

Authors: Ezequiel Navarro Pérez, Antonio Rojas Cuevas, Claudio Cañete Cabeza, Andrés García Morilla, Sergio Cobos Reyes, Antonio Serrano Sillero, Juan Esteo García, Lucía Vera Mahiques.

English revision: Rob Pagones and Sergio Lorenzi Agustín.

Design and layout: María de Andrés Arranz.

Print: Altagrafics Inversiones Gatellco 3 SL / Avenida de la Aurora 28, 29002 Málaga

PUBLISHING HOUSE

Agencia del ISBN en España

ISBN 978-84-697-8100-5

First edition
All rights reserved
Málaga, Spain, December 2017.

PREMO S.L.

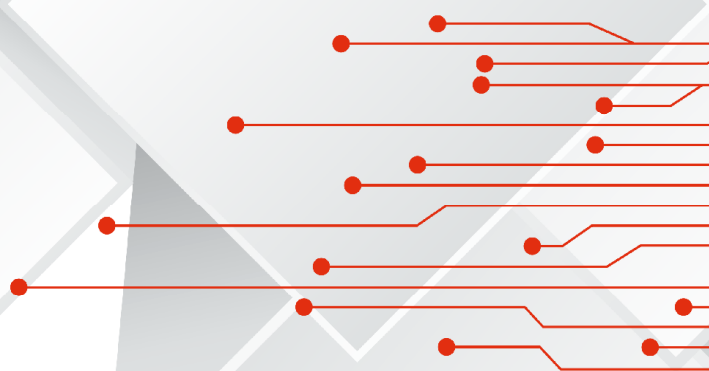
Severo Ochoa 47 Parque Tecnológico de Andalucía
29590 Campanillas - Málaga - Spain

info@grupopremo.com

www.grupopremo.com

www.3dcoil.grupopremo.com

+34 951 231 320



VR EM MOTION TRACKING SENSORS & APPLICATIONS

Innovative Magnetics have a significant role in sensing and tracking position and motion in immersive Virtual and Augmented Reality systems. **Premo** is committed to contribute with World Class Innovative components to the Key Enabling Technologies of the 4th Industrial Generation. 4 patents have been filed for VR Tracking sensors in less than 6 months. With this book we start a series of publications on our contribution to a coming better world from our experience, vision and value proposition. This is a recognition and tribute to our team of Innovators and our Ecosystem. We hope you can enjoy and contribute online in our **Blog 3dcoil.grupopremo.com** if you, as we expect, want to enlarge this knowledge and technology Ecosystem.



CONTENTS

CHAPTER 1 | PAG 4

10 KEY CRITERIA FOR CHOOSING EM TRACKING SENSORS

By Ezequiel Navarro Pérez

CHAPTER 2 | PAG 22

VR MARKET UPDATE: THE ECONOMIST'S VIEW

By Ezequiel Navarro Pérez et Al

CHAPTER 3 | PAG 44

DESIGN FOR EMTS MANUFACTURING. VR/AR COMPONENTS

By Andrés García Morilla

CHAPTER 4 | PAG 58

AR/VR TECHNOLOGY. WILL IT CHANGE THE WORLD?

By Antonio Rojas Cuevas

CHAPTER 5 | PAG 66

GEOMETRIC SYMMETRY IN VR/AR ELECTROMAGNETIC MOTION TRACKING SENSORS

By Ezequiel Navarro Pérez et Al

CHAPTER 6 | PAG 88

WHAT ARE ELECTROMAGNETIC TRACKING SYSTEMS?

By Ezequiel Navarro Pérez et Al

CHAPTER 7 | PAG 104

DECODING THE GOLDMAN SACHS REPORT ON VIRTUAL REALITY

By Ezequiel Navarro Pérez

CHAPTER 8 | PAG 118

OBSERVATORY OF VR/AR MOTION TRACKING

By Ezequiel Navarro Pérez

CHAPTER 9 | PAG 128

VIRTUAL REALITY AND NEW TECHNOLOGY TRENDS: WHAT'S NEXT?

By Claudio Cañete Cabeza

CHAPTER 10 | PAG 136

VR & AR WORLD, WE WENT, WE SAW, WE'RE TELLING YOU ABOUT IT

By Juan Esteo García

CHAPTER 11 | PAG 142

AR/VR INNOVATIONS IN SURGERY AND HEALTHCARE

By Sergio Cobos Reyes

CHAPTER 12 | PAG 160

INSIGHTS INTO VR & AR: FACTS AND PROSPECTS

By Juan Esteo García

CHAPTER 13 | PAG 178

IMPROVING ENGAGEMENT BY TRUE IMMERSIVE EXPERIENCES IN SERIOUS GAMING USING VR & AR TECHNOLOGIES

By Lucía Vera Mahiques

CHAPTER 14 | PAG 192

HOW IS ELECTROMAGNETIC MOTION TRACKING USED IN VR/AR?

By Antonio Serrano Sillero

CHAPTER 15 | PAG 210

THE MOST EXTREME EXAMPLES OF VIRTUAL REALITY: IMMERSIVE EXPERIENCE

By Lucía Vera Mahiques