

# /SUMARIO/ /SUMMARY/

**Prologue: Recent Trends in Computer Science and Engineering (RTCSE)**

Jason Levy, Bishwajeet Pandey, Bhawani Shankar Chowdhry y Ciro Rodriguez

19

**Automated logistic systems: needs and implementation**

Abbas Shabbir Ezzy, Farhan Zafar Khan, Moiz Akram, Janib Agha y Atif Saeed

27

**IoT based fluid management automation system using Raspberry Pi and ultrasonic sensors**

Ayesha Urooj, Sallar Khan, Sana Shafiq, Bilal Ahmed, Abdul Basit y Shaheer Mustafa Ansari

47

**Design and analysis of inline pipe turbine**

Muhammad Talha, Atif Saeed, Mustafa Jaffer, Hayyan Yousuf Khan, Ali Haider y Wajahat Ali

63

**Performance analysis of the quantum processor: based on reversible shift register using QCA**

Rajinder Tiwari, Anil Kumar y Preeta Sharan

75

**AC/DC critical conduction mode buck-boost converter with unity power factor**

Abdul Hakeem Memon, Fazul Muhammad Noonari, Zubair Memon, Ahmar Farooque y Mohammad Aslam Uqaili

93

**Wireless power transfer via inductive coupling**

Mirsad Hyder Shah y Nasser Hassan Abosaq

107

**Cost-effective and innovative test jig for fishing-bait release mechanisms attached to drones**

Pierre Eduard Hertzog y Arthur James Swart

119

**Validating the optimum tilt angle for PV modules in the highveld of South Africa for the summer season**

Motlatsi Cletus Lehloka, Arthur James Swart y Pierre Eduard Hertzog

137

**Aggregated model for tumor identification and 3D reconstruction of lung using CT-Scan**

Syed Abbas Ali, Nazish Tariq, Sallar Khan, Asif Raza, Syed Muhammad Faza-ul-Karim y Muhammad Rahil Usman

159

**Automatic pizza cutting machine**

Atif Saeed, Saud Sattar y Andrew Ferguson

181

---

**An innovative jig to test mechanical bearings exposed to high voltage electrical current discharges**

Nicolaas Steenkamp y Arthur James Swart

195

---

**Adhesion level identification in wheel-rail contact using deep neural networks**

Sanaullah Mehran Ujjan, Imtiaz Hussain Kalwar, Bhawani Shankar Chowdhry, Tayab Din Memon y Dileep Kumar Soother

217

---

**Comparative analysis of supervised machine learning algorithms for heart disease detection**

Hector Daniel Huapaya, Ciro Rodriguez y Doris Esenarro

233

---

**Effect of COVID-19 epidemic on research activity of researcher in Pakistan Engineering University and its solution via technology**

Shafiq-ul-Rehman Massan, Muhammad Mujtaba Shaikh y Abdul Samad Dahri

249

---

**Usability of eGovernance application for citizens of Pakistan**

Abdul Samad Dahri, Shafiq-ul-Rehman Massan y Ayaz Ali Maitlo

265

---

**Extended Kalman filter for estimation of contact forces at wheel-rail interface**

Khakoo Mal, Imtiaz Hussain, Bhawani Shankar Chowdhry y Tayab Din Memon

279

---

**Advances in augmented reality (AR) for medical simulation and training**

Vladimir Ivanov, Alexander Klygach, Sam Shterenberg, Sergey Strelkov y Jason Levy

303

---

