SDC 5: Vital Sign Sensing Radar

1. Technical Committee number and name:

TC-28 MTT Biological Effects and Medical Applications Committee

1. Description of competition and rules:

This SDC aims to introduce students to vital sign sensing radars, which are open to all students registered at an educational institution. With the reference signals, participating teams are required to design, fabricate, and demonstrate a radar system that balances portability (power consumption, weight, and size), performance (accuracy and response time), and potential in practice.

1. Contact names, email addresses, and phone numbers of competition organizers:

Prof. Chung-Tse Michael Wu, ctm.wu@rutgers.edu, 1-848-445-5393

Prof. Fu-Kang Wang, fkw@mail.ee.nsysu.edu.tw, 886-7-5252000#4182

Prof. Jose-Maria Munoz-Ferreras, jm.munoz@uah.es, 34-91-885-6692

Prof. Olga Boric-Lubecke, olgabl@hawaii.edu, 1-808-956-9648

1. Criteria for judging:
   * 1. (40%) Portability: power consumption, size, and weight
     2. (40%) Performance: the ratio of average accuracy to window length
     3. (20%) Potential: additional capability such as multiple subject sensing, heart rate variability (HRV) information, low cost design.
2. Equipment provided at the day of the competition:

A power supply with a single DC voltage output up to 15 V to power up the radar. The maximum output current and output voltage resolution are respectively up to 2 A and 1 mV.