



# Indoor Reverse RFID Tag Localization Within A Mobile RFID Antenna Reader Environment

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Radio frequency identification systems (RFID) is one in every of data capture technologies associate in an automatic identification technology that is used for distinguishing and tracing completely different objects domestically and globally, person or animal, electromagnetic coupling within the RF portion of the spectrum to spot these objects. RFID is one in every of the quickest growing and most useful technologies being adopted by businesses these days, it's coming back into increasing use in trade as an alternate to the Universal Product Code, and it's various applications like, inventory management and object pursuit or security checks, RFID refers to small electronic devices that encompass a small chip associate in an antenna. this method uses tags attached to the objects to be identified.

The reverse RFID location system described here lets people realize their means once GNSS or alternative positioning systems fail for lack of reliable signals. Of course, the reverse RFID location system isn't restricted to areas of poor GNSS reception and RFID location is also integrated with GNSS or alternative navigation systems to produce smooth transitions between systems.

This paper describes associate in advancing triangulation methodology localization primarily based algorithm to localize a tag inside a mobile RFID antenna reader surroundings. The proposed tag localization algorithm is developed to validate this localization method, simulate it and analyse its performance. demand specification for the proposed RFID primarily based localization modelling will be determined supported numerous analysis with completely different trace eventualities. The proposed algorithm analyses tag localization supported a sensible knowledge. This sensible knowledge will be obtained from the proposed tag localization demonstration system that it has been designed and supported the proposed tag localization algorithm. Multiple analyses are illustrated to indicate the performance of the proposed indoor reverse RFID tag localization methodology.



### ***Biography of Dr. Yasser M. Madany (Y. M. Madany)***



Yasser M. Madany is a Doctor of Engineering at Air Defense College, Alexandria University, Alexandria, Egypt. He is member of the Association of Egyptian Engineers (**AEE**) [since **1994**], Institute of Electrical and Electronics Engineers (**IEEE**) [since **2001**], European Association on Antennas and Propagation (**EurAAP**) [since **2014**], Asian Advanced Materials Congress (**ASAMC**) Advisory / Organizing Committee Member [since **2016**], Arab Experts Network (**AEN**) [since **2020**], International Union of Radio Science (**URSI**). Dr. Madany is currently a *Senior member, IEEE*, and *URSI Senior Member*.

Dr. Madany received the **B.Sc.**, **M.Sc.**, and **Ph.D.** degrees in Electronics and Communications Engineering (ECE), specialization in Antennas and Wave Propagation from Alexandria University, Alexandria, Egypt, in **1994**, **2002** and **2005**, respectively. He has **published** more than 80 research papers regarding antennas (microstrip – fractal – bandgap – radar – wireless – active - nanowires), microstrip array antennas (planar – switched – phased – smart - MIMO), numerical methods in computational electromagnetics (MOM – FDTD – FEM), microstrip transmission lines and filters, waveguide and waveguide structures, RF pulse compression systems and technologies, smart guidance technologies, CRLH-TL and metamaterial technologies and applications, unmanned aerial vehicles (UAV) guidance and technologies, radar theory; design and analysis (monostatic – bistatic), microwave engineering (radar – communication) applications, navigation sensor applications, radio frequency identification (RFID) applications, smart communications network systems and electromagnetic pulse (EMP) design and technologies.

Dr. Madany has **supervised** numerous graduation projects (*more than 50 project*) and M.Sc. and Ph.D. postgraduate degrees (*more than 16 theses*). He was a **technical program committee member** in many international conferences, journals [*IEEE Microwave and Wireless Components, the Electron Devices Society, Applied Computational Electromagnetics Society (ACES), IET, “Radar, Sonar & Navigation”, IET, “Microwave, Antennas & Propagation”, ELSEVIER, Computing and Digital Systems (IJCDs), Microwave*], and SciTech Publishing, Inc. He was engineering **laboratory consultant** for many fields. Dr. Madany has **served** as the Technical Program Chair for the 2021 International Telecommunications Conference, ITC-Egypt’2021 and Editor-in-Chief, International Journal of Telecommunications, IJT.

Dr. Madany was included in **Who's Who in the World**, published in 2009, 2011, 2012, 2013, 2015, 2016, 2018 and 2019 editions, respectively, included in **Who's Who in Science and Engineering** in the 2011-2012 and 2016-2017 editions and included in the 2017, and 2018 **Albert Nelson Lifetime Achievement Award** from Marquis Who's Who.

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