



MagRing-SASB: Static Authentication of Magnetism Sensor Using Semi-Biometric Interaction Magnetic Ring

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Abstract— The Smartphone is one of the most well-known and widely used gadgets in contemporary times for protecting private information. Biometric methods are one way for authenticating Smartphones. However, the difference in ages (i.e., elders and children) affects the authentication procedure. When authenticating sensor-based behavioral and physical biometrics, unrecognition and forgetfulness are the most critical problems that many people face. This paper describes the current implementation of this technique on a smartphone device, which is in catch utilizing a properly valued magnet intensity (a magnetic ring) taken as a semi-biometric based on static authentication, called MagRing-SBSA. It bases on manipulating the Magnetometer sensor included in the latest generation of mobile devices. It can demonstrate the authentication procedure utilizing a magnetic ring from a magnetometer, detecting data from the unique per device generated in the area surrounding the device by a magnet held in hand. The magnetic ring's stable location while carrying the device causes a change in the magnetic field, which the

to authenticate smartphones due to the fact that magnetic authentication offers many potential advantages over conventional authentication methods, including higher security and greater adaptability [14]–[16].

However, since traditional authentication techniques may be quickly copied, shared, and transmitted, they are vulnerable to fraud. Biometric authentication techniques (e.g., face, iris, and fingerprint) [17], on the other hand, have recently gained popularity for smartphone devices since they are not susceptible to being copied or reproduced because they rely on the users' unique physical characteristics [6], [7], [15], [18]. Such authentication methods may be computationally expensive, have lighting and occlusion issues, and need modifications to smartphone physical and hardware design. The researchers proposed the “3D Magnetic Signature” as a method for touch-less

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