

## **Embed RFID chip as a security add value to large Egyptian banknote denomination**

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### **Abstract:**

In our time Modern technology plays an effective role as one of the currency security elements against counterfeit, Making it an added value in combating counterfeiting and securing currency against fraud Thus preserving the global and national economy and preventing many crimes that result from currency counterfeiting, Japan's Hitachi has developed a micro-chips that identify radio frequency (RFID) 60 microns and operate at 2.45 GHz, which does not require any external antenna, Allowing the inclusion of tracking and identification chips within banknotes, tickets and other paper products. [1]

The micro-chips RFID has been added to the Euro, Japanese Yen, US Dollar and Australian Dollar Currencies to increase their security alongside with the currency common security components.

Hence, the problem of the research is that the Egyptian banknotes does not guarantee the technology of micro-chips RFID IC tags to increase its security properties, especially larger denomination banknotes such as the hundred and two hundred Egyptian pounds, which is the first target of the forgers, which is always trying to falsify and print.

The research used an analytical, descriptive approach based on the description and analysis of the RF-IC tags and the experiences of countries in integrating this technology into their banknotes in order to achieve the desired results.

The research aims to shed light on the importance of the use of microchips RFID IC tags as a value added to Egyptian paper currency to raise the banknote security level in accordance with the currency denomination. In order to achieve the objective of the research, the research plan included the following axes:

The first axis: Definition of RFID technology and its types

The second axis: Micro-RFID chip from Japanese Hitachi

Axis 3: Banknotes containing the micro - RFID chip

Axis IV: A proposed model for the 200-pound banknote to integrate the micro RFID chip as an added value to its current security elements.

The research has yielded the following results: The embed of micro-chip RFID into banknotes will increase the security levels of the banknote, the difficulty of fraud and the speed of discovery of the fraud. also Microchip RFID technology will make it easier to read and verify the banknotes through the banks' And ATMs.

The micro-chip RFID technology will increase the cost of banknotes production and should therefore be placed in the large banknote denominations as one hundred and two hundred pounds, and this act will reduce the losses caused by counterfeiting of banknote and helping law enforcement agencies to track smart banknotes as part of their efforts to combat drug trafficking or Other organized crime programs.

The study recommends that the Central Bank of Egypt adopts RFID micro-chip tags as one of the additional techniques to secure Egyptian banknotes with large denominations such as one hundred and two hundred pounds, as well as awareness of the potential of RFID technology  $\mu$ -chip integrated in the banknotes and how to deal with them to achieve the highest levels of security of the banknotes

**Key words: Rafid - Banknote protection - U -chip rafid - Banknotes - European central bank.**