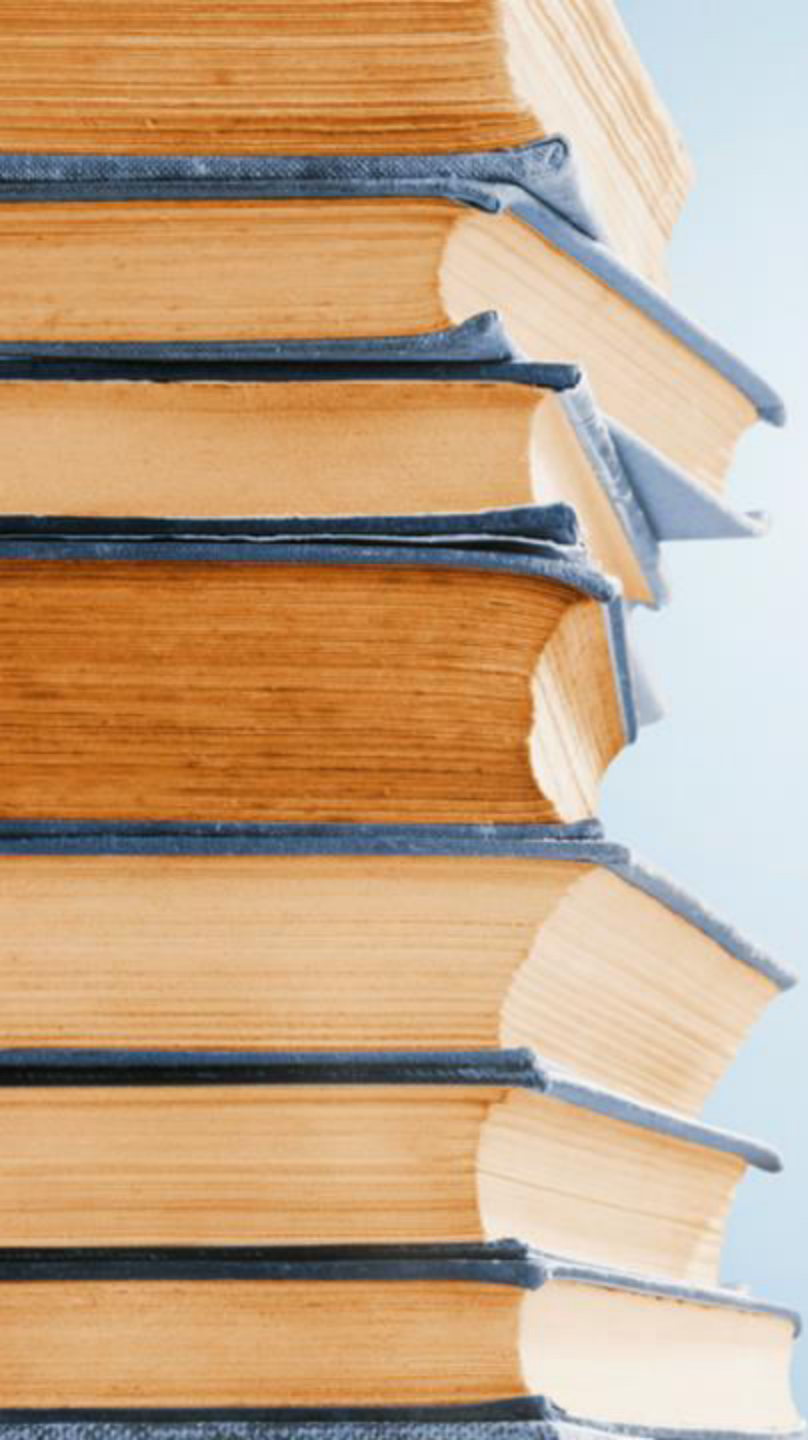
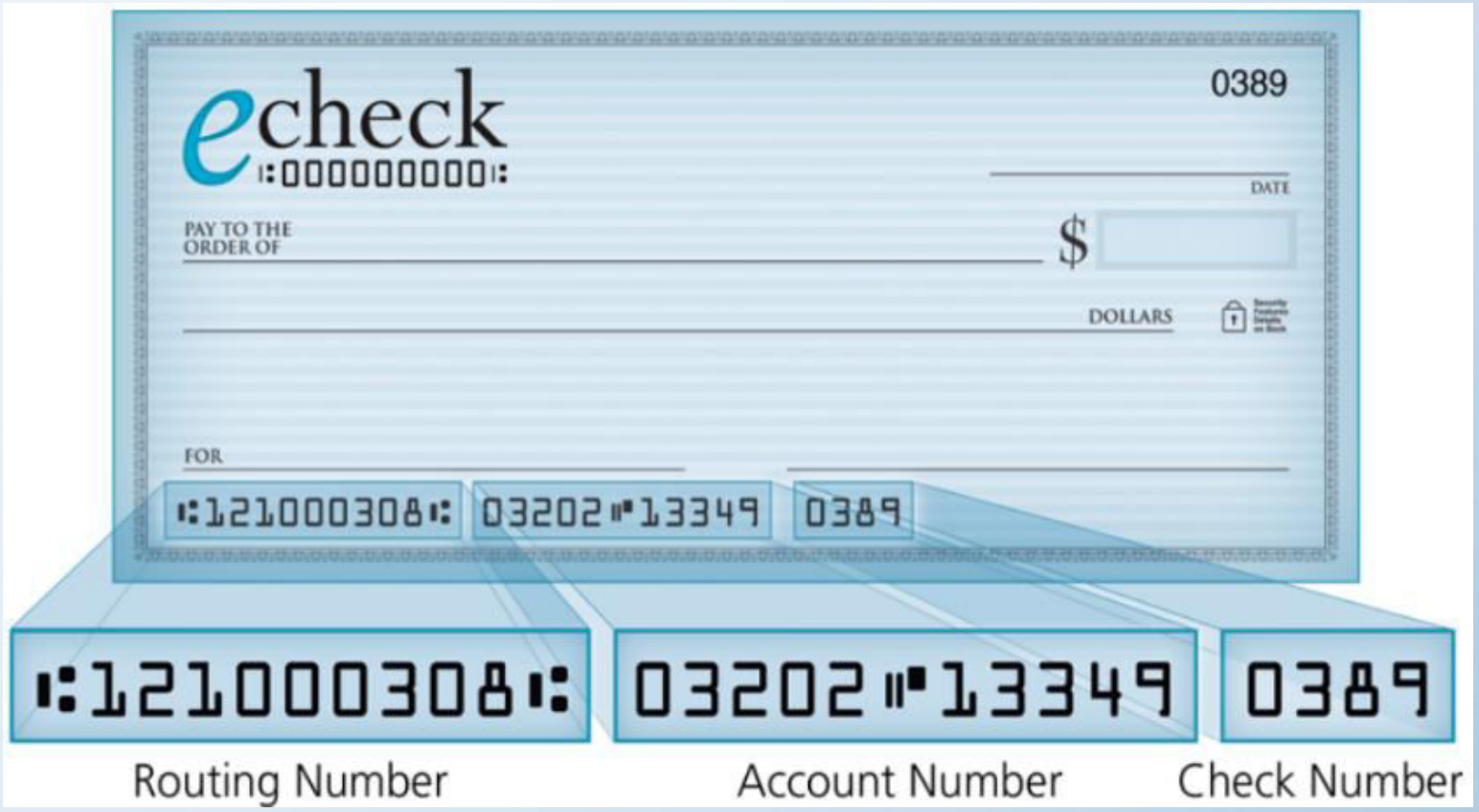


CSC-370
E - Commerce
(BSc CSIT, TU)

Ganesh Khatri
kh6ganesh@gmail.com

Electronic Checks

- An electronic check, or e-check, is a form of payment made via the Internet, or another data network, designed to perform the same function as a conventional paper check.
- Additionally, it has more security features than conventional paper check including authentication, public key cryptography, digital signatures, and encryption, etc.



Electronic Checks

- Generally, the costs associated with issuing an electronic check are notably lower than those associated with paper checks
- Electronic checks can be used to make a payment for any transaction that a paper check can cover, and are governed by the same laws that apply to paper checks
- Generally, the costs associated with issuing an electronic check are notably lower than those associated with paper checks.
- Electronic checks also come with a lower risk of the associated funds being stolen, as there is no tangible item to intercept
- eChecks use the Automated Clearing House (ACH) to direct debit from a customer's checking account into a merchant's business bank account, with the help of a payments processor

How Electronic Checks work?

- In order to accept eCheck payments, a business must first obtain the customer's information including their bank routing and checking account numbers.
- This information can be obtained online, by phone, or in person via a paper form.
- Most businesses today have websites and can provide a secure form page for this customer information
- Using this information, the merchant's bank can communicate directly with a customer's bank.
- Once the funds are verified, the direct debit happens via ACH(Automated Clearing House)

How Electronic Checks work?

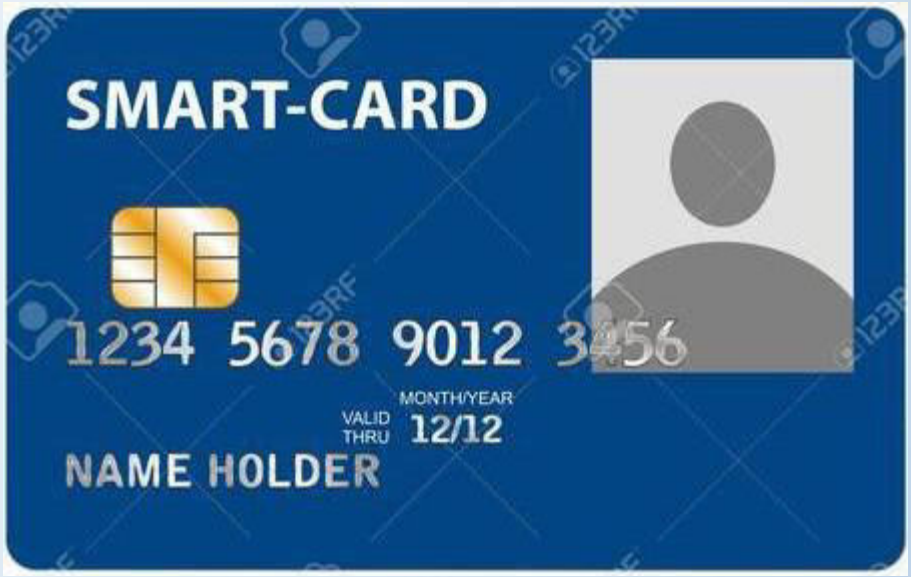
- Following are the parties involved in ACH electronic check payment processing
  1. **An originator :** The merchant cashing the eCheck. The originator initiates the direct deposit process by obtaining the necessary information from the customer
  2. **The business bank :** The originator's bank, also called the Originating Depository Financial institution (ODFI). The business bank places the ACH entry at the originator's order, aggregates payments from a variety of customers, and sends the payments in batches to an ACH operator.
  3. **An ACH operator :** The ACH operator sorts the fund request and settles the funds into the business bank.
  4. **The customer's bank :** a Receiving Depository Financial Institution (RDFI) receives the request, verifies that the funds are available, debits the customer's account and credits the business account.

Benefits of Electronic Checks

- Saves you time with your deposits - no more bank runs or long teller lines
- Lowers traditional bank fees, like per item deposit and returned item fees
- Funds you quickly
- Secures your customer’s personal and bank account information by returning the original item to the check writer
- Expandable equipment is simple and user friendly

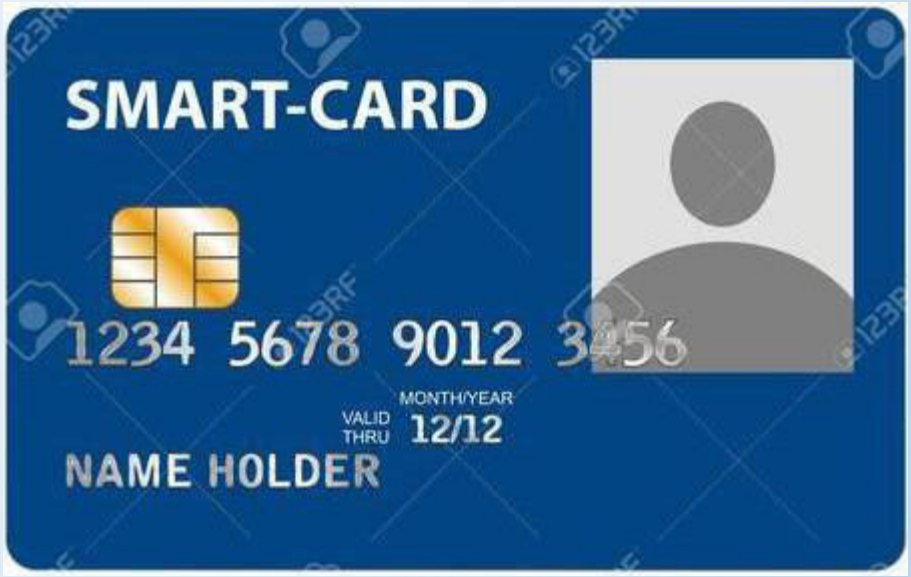
Smart Cards

- A smart card is a device that includes an embedded integrated circuit chip (ICC) that can be either a secure microcontroller or equivalent intelligence with internal memory or a memory chip alone
- The card connects to a reader with direct physical contact or with a remote contactless radio frequency interface.
- With an embedded microcontroller, smart cards have the unique ability to store large amounts of data, carry out their own on-card functions (e.g., encryption and mutual authentication) and interact intelligently with a smart card reader



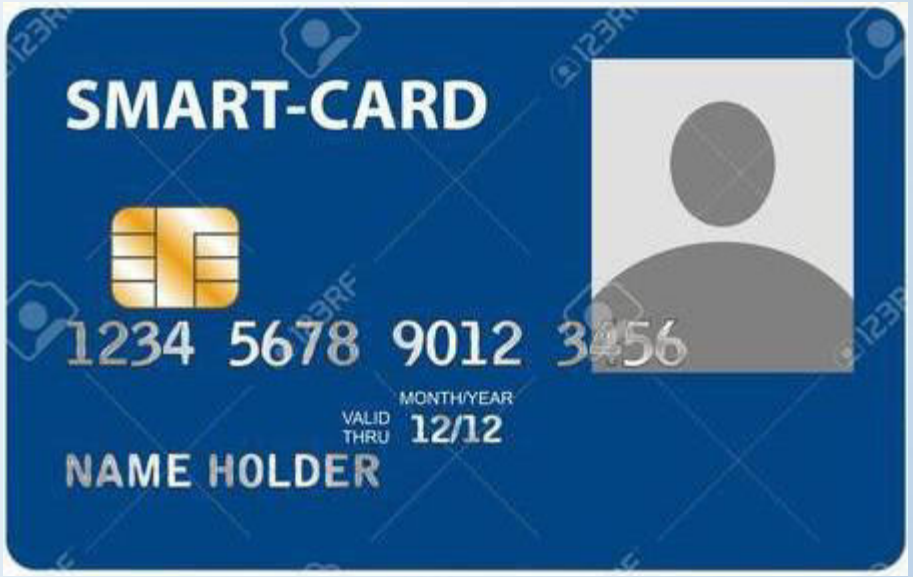
Smart Cards

- Smart card technology is available in a variety of form factors, including plastic cards, fobs, subscriber identity modules (SIMs) used in GSM mobile phones and etc
- Based on the working mechanism, there are three types of smart cards :
  - Contact Smart Card
  - Contactless Smart Card
  - Hybrid Smart Card



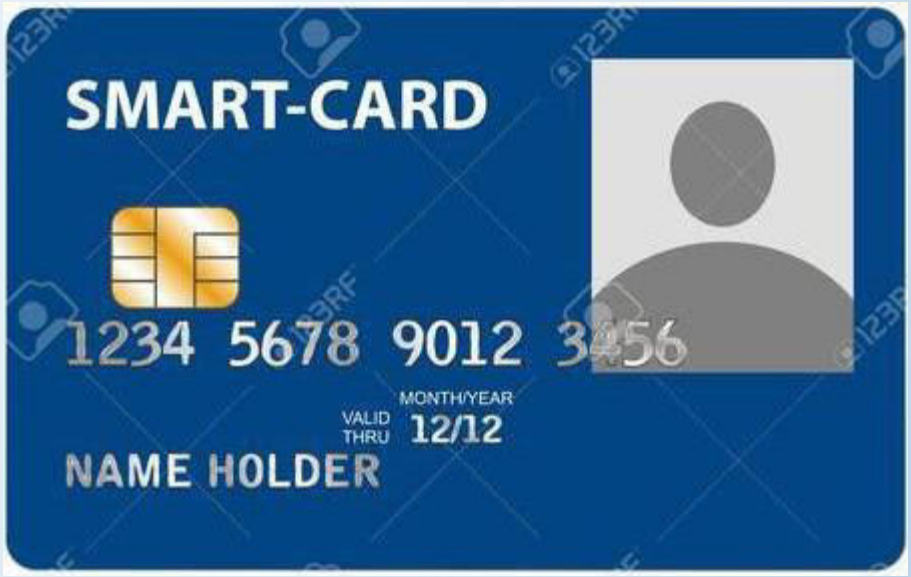
Smart Cards

- **Contact Smart Card :**
  - most common smart cards in use.
  - ATM cards, most credit cards, SIM cards etc fall into this category.
  - the cards should be inserted into card readers, it reads the information stored on the contact pad and carry out transactions as required



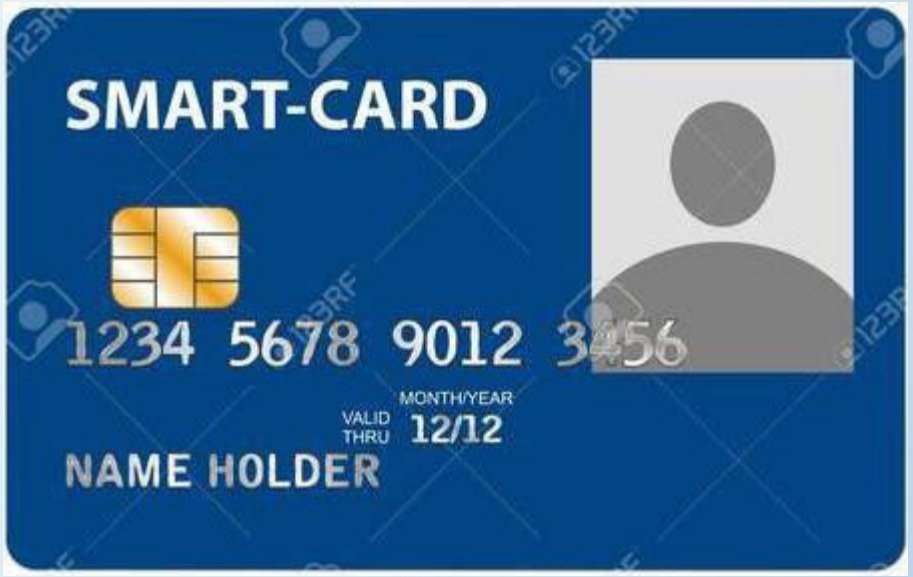
Smart Cards

- **Contactless Smart Card :**
  - these cards do not require a reader.
  - It works using Near Field Communication technology or using radio frequencies which establishes wireless communication between the smart card and card reader.



Smart Cards

- **Hybrid Smart Card :**
  - Hybrid cards are cards with dual capacity.
  - These cards can work both on contact and contactless card readers.
  - These cards are quite rare in use
  - This type of smart card can has two chips, one with a contact interface and one with a contactless interface
  - **A dual-interface card** has a single chip with both contact and contactless interfaces and it is possible to access the same chip using either a contact or contactless interface



Applications of Smart Cards

- **Secure identity applications :**
  - employee ID badges, citizen ID documents, electronic passports, driver's licenses, online authentication devices
- **Healthcare applications :**
  - citizen health ID cards, physician ID cards, portable medical records cards
- **Payment applications :**
  - contact and contactless credit/debit cards, transit payment cards
- **Telecommunications application :**
  - GSM Subscriber Identity Modules, pay telephone payment cards