

Mobile Interaction

Auditorium Exercise 10

NavIC

- Consists of constellation of 7 satellites system on lower orbit.



<https://www.isro.gov.in/SatelliteNavigationServices.html>

Disadvantages of GPS

- Inaccuracy due to signal interference
- Atmospheric conditions can disrupt signals
- Lack of local knowledge
- Privacy issues
- Reliance on US Department of Defense

NavIC

- Consists of 7 satellite system and are on lower orbit.
- NavIC satellites rotates along with earth, in comparison to GPS which are a stationary
- NavIC uses 7 satellites to compute a position, whereas GPS only uses 4 satellites.
- Accuracy is 0~1 m
- Other satellite positioning systems: GPS (America), Glonass (Russia), Galileo (Europe) and BeiDou (China)

Comparison of NavIC vs GPS



GPS



NavIC

Try NavIC: <https://bhuvan-app1.nrsc.gov.in/globe/3d.php#>

Object Tagging: Sample Applications 1D/2D Barcodes?



Object Tagging: GenerativeAI QR code



QR payments in India

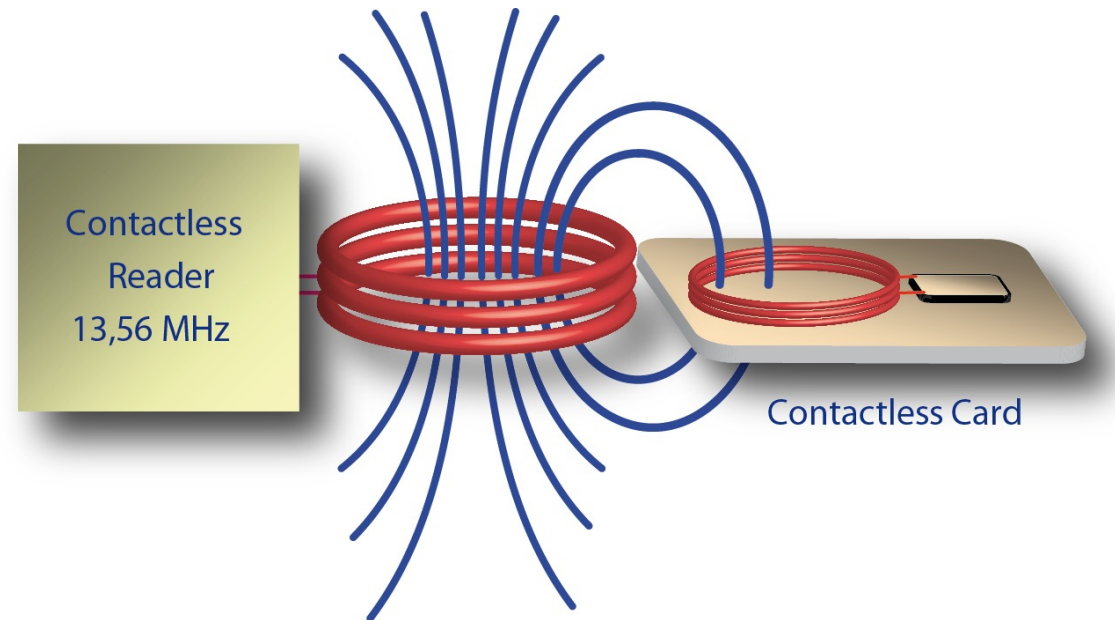
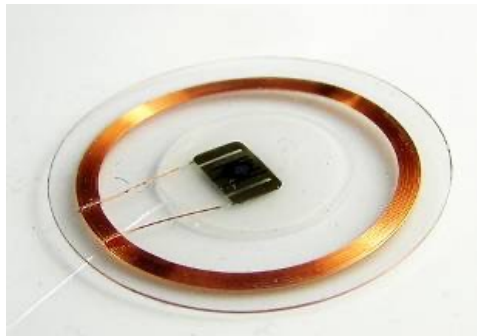


How does NFC payments work

- Tags are powered by electromagnetic field
- Reader has a coil in it and card has antenna in it.
- Active and passive connection
- When you tap :
 - Card send data such as number, date
 - But it also send a cryptogram string of numbers for creating a cryptographic key.
- Secure in comparison to card insert



Object Tagging: Example applications RFID/NFC?



1D/2D Barcodes vs. NFC/RFID

- Advantages of 1D/2D barcodes over NFC/RFID?

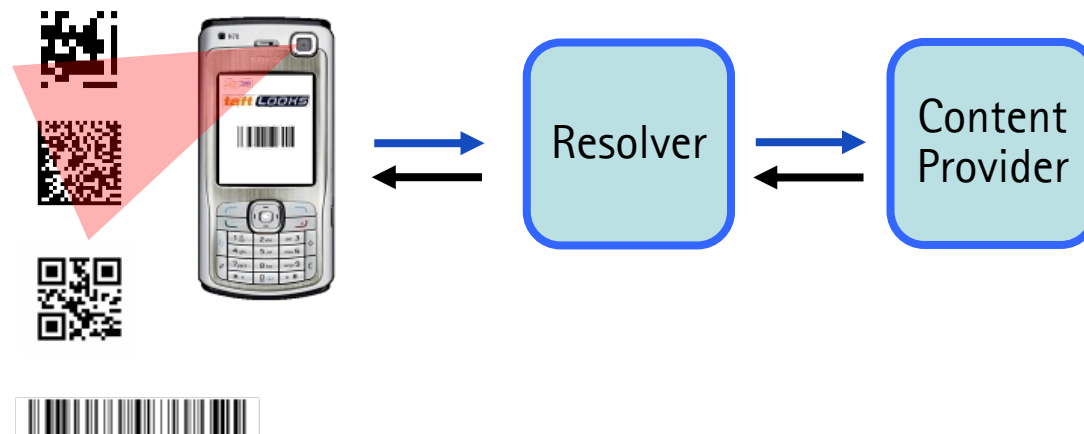
1D/2D Barcodes vs. NFC/RFID

- Advantages of NFC/RFID over 1D/2D barcodes?

Berlin U Bahn. Interaction problem?



Why resolvers?



ASSIGNMENT 11 PREVIEW

Exercise 1- FoodFacts

- Template scans a product barcode and then queries the "Open Food Facts" database.

Exercise 1- FoodFacts

- a) Show nutritional information about the scanned product
- b) Show allergens that may be contained in the product
- c) Show a picture of the product, if one is available.

QUESTIONS?

GOOD LUCK!