Near Field Communication (NFC)

INTRODUCTION

NFC is a short –range wireless connectivity

Range within few centimeters

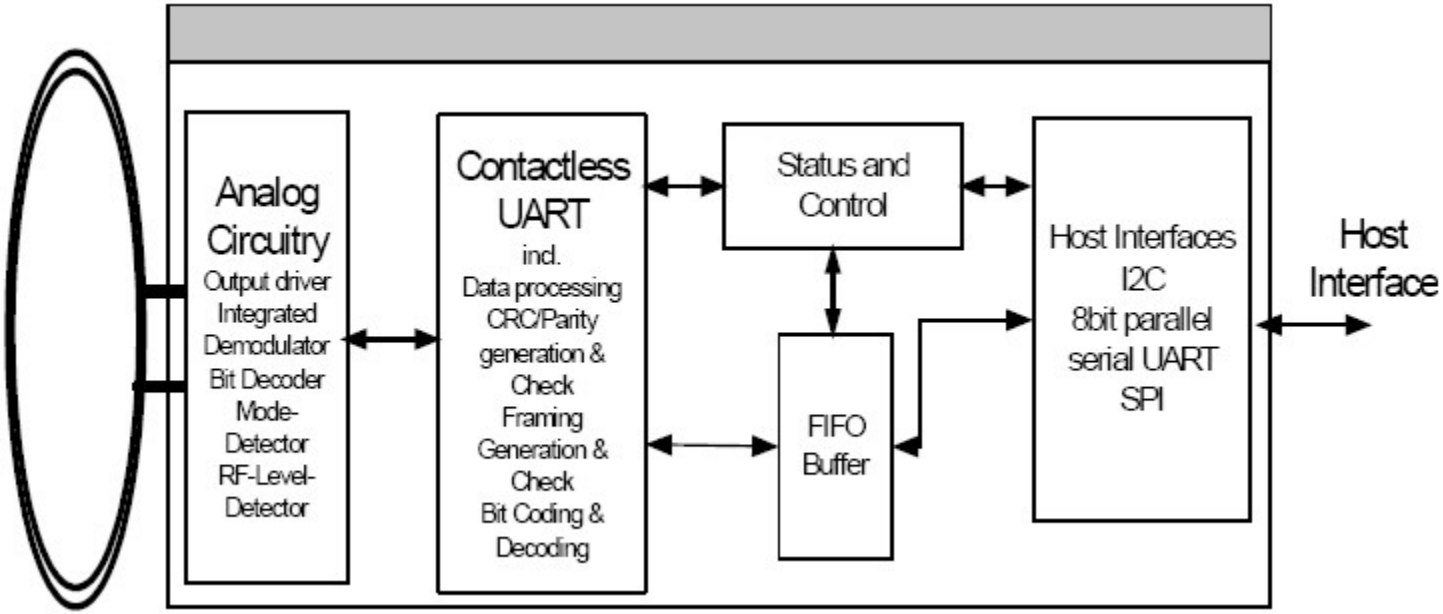
Up to 20 cm

Two devices are literally “touch” one another

The interface can operate in several modes

Used in: payment & ticketing, electronic keys, identification etc....

BLOCK DIAGRAM.....



BLOCK DIAGRAM.....

UART

FIFO buffers

Microcontroller

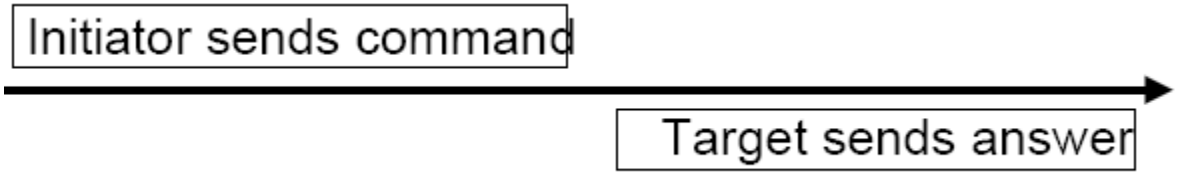
Analog circuitry

RF level detector

Contactless Host interface

COMMUNICATION MODES

Passive Communication Mode



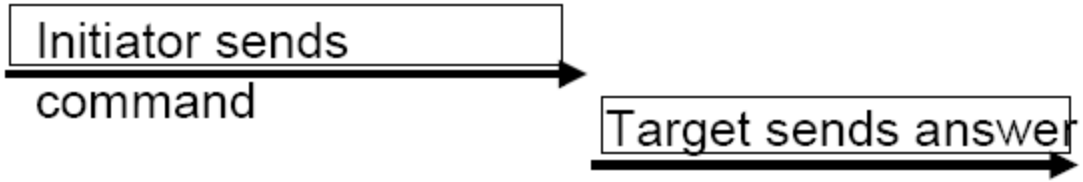
The Initiator device provides a carrier

The Target device answers by modulating existing field

Target device act as a transponder

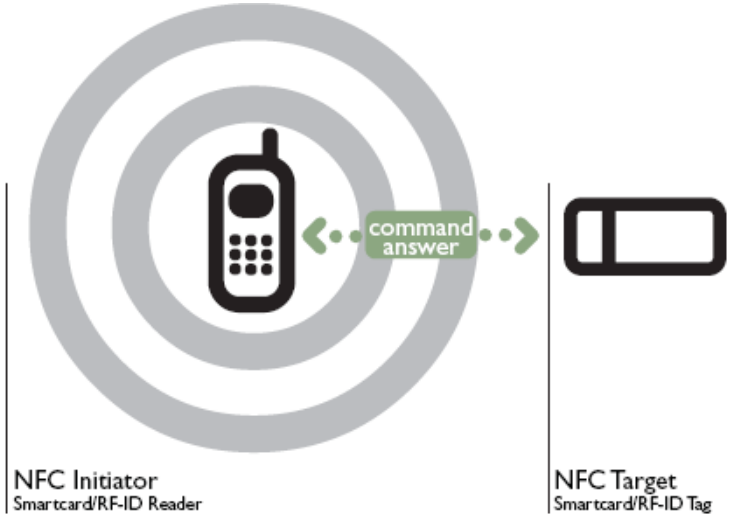
COMMN MODES.....

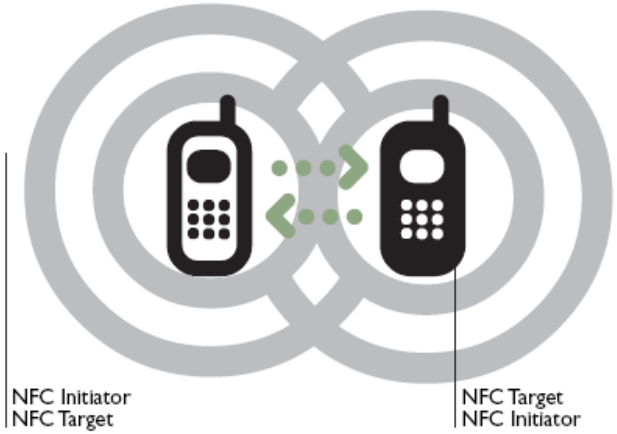
Active communication mode

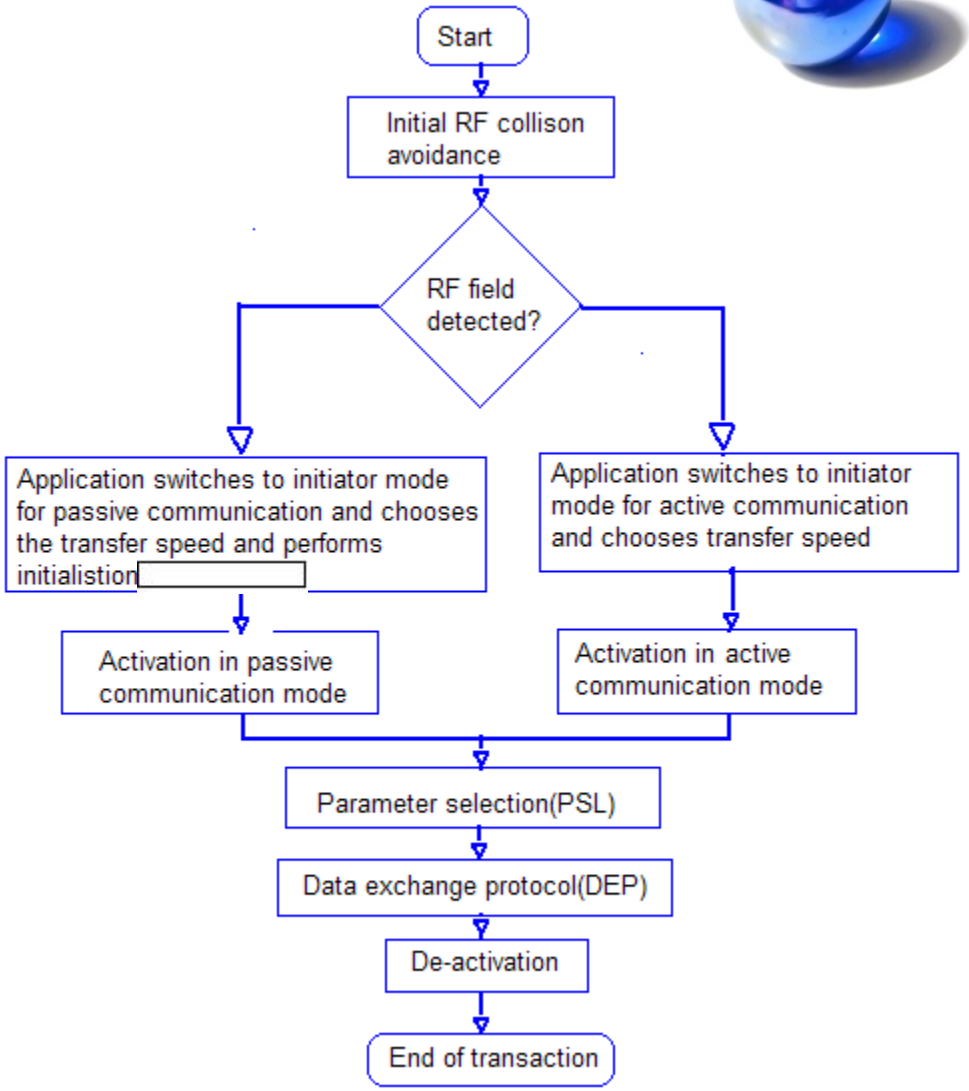


Both Initiator and Target device communicate by generating their own field

HOW NFC WORKS?



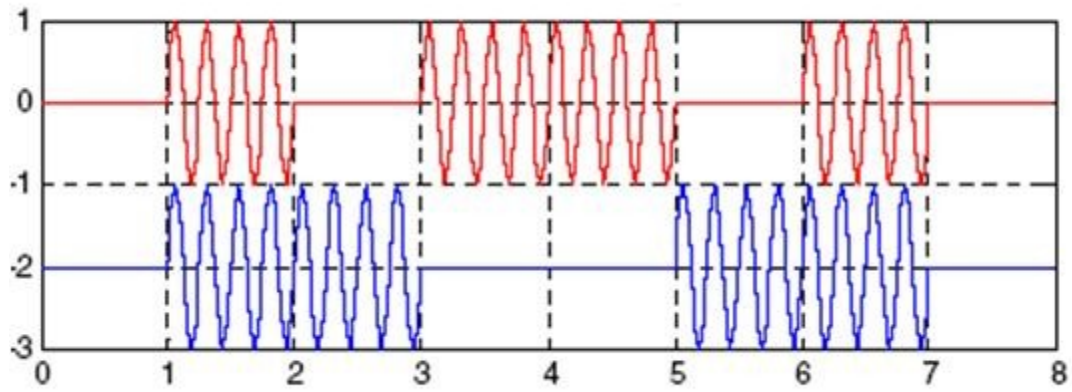


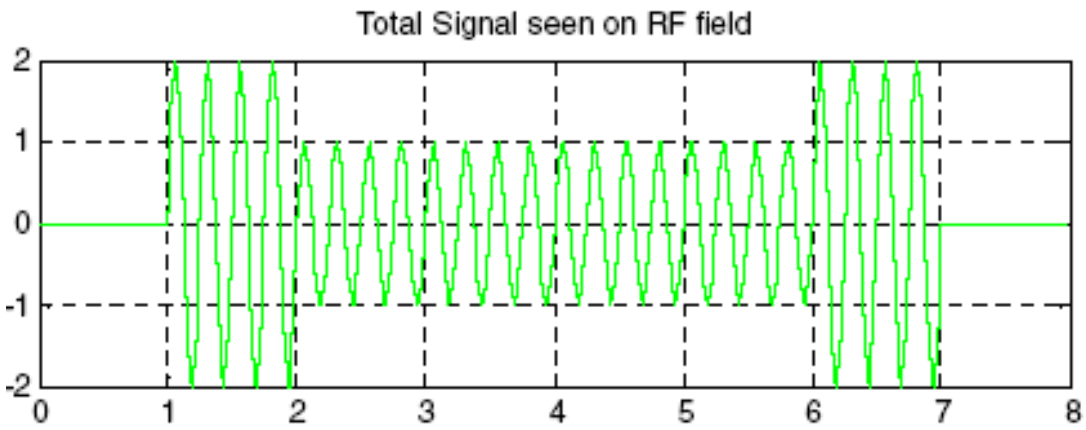


COMPARISON WITH OTHER TECHNOLOGIES

	NFC	BENEFITS OF NFC	BLUETOOTH	IR
N/W TYPE	Point-to-point	Pairing= bringing	Point to multipoint	Point-to-point
RANGE	<0.1m	Suitable for crowded	10m	1m
MAX SPEED	1 mbps	faster	721 kbps	115 kbps
SET-UP TIMES	<0.1 s	Fast transaction	6 s	0.5 s
MODES	A-A, A-P	Reader & card	A-A	A-A
COMPATIBLE WITH **RFID**	yes	Can use existing infrastructur	no	No
COST	low	Affordable for most devices	moderate	low

MOD ULA TION S CHEME





NFC enabled mobiles

Nokia 6280 Motorola A925 Sony Ericsson K750i

Maximum Reading Range:

68mm 68mm 45mm

SECURITY ASPECTS….

Eavesdropping

- RF filed characteristic of the given sender device
- Characteristic of the attacker’s antenna
- Quality of the attacker’s receiver
- Quality of the attacker’s RF signal decoder
- Setup of the location where the attack is performed
- Power sent out by the NFC device

SECURITY ASPECTS....

Data corruption

- Modification of data send by NFC
- Achieved by transmitting valid freq of the data spectrum a correct time
- No manipulation possible

ADVANTAGES OF 13.56…

- Frequency band available worldwide as an ISM frequency
- At this frequency transponders are very cheap and easy to manufacture.
- Minimal shielding effects from adjacent objects and the human body
- Damping effects of water relatively small, field penetrates dense materials
- Excellent immunity to environmental noise and electrical interference

APPLICATIONS….

Touch and go

Touch and confirm

Touch and connect

Touch and explore …….

Inside Bus

Mobile Payment

At railway station

ADVANTAGES

Availability for all applications

Lower cost (less complex, circuit size, ...)

Better performance

Low-power encryption

ensures all sensitive data is not disclosed to unwelcome third parties

Easy to operate, simply hold closer

Both powered & non powered

FUTURE SCOPE

- Uniform support for standard applicati
- Enable security-sensitive applications by adding
- Setting up membership to networks
- Managing privacy-s

CONCLUSION

Smart Touch introduces the next connected experiences

Focus on improved security and privacy

Availability of NFC enabled handsets will be critical in gaining user base

NFC can bring together information, payment and

location through the medium of mobile phone

THANK YOU

QUESTIONS ???