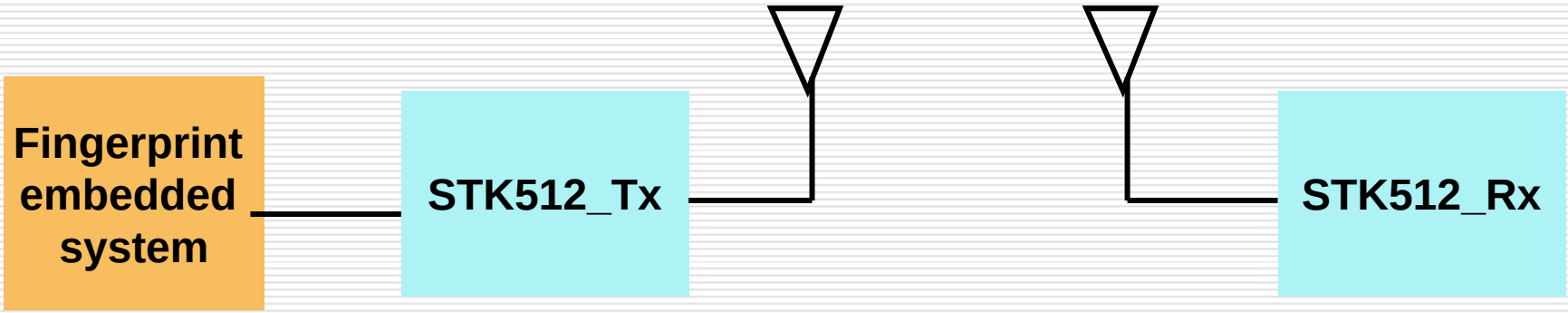
Fingerprint Embedded Remote Access Control (RAC) solution

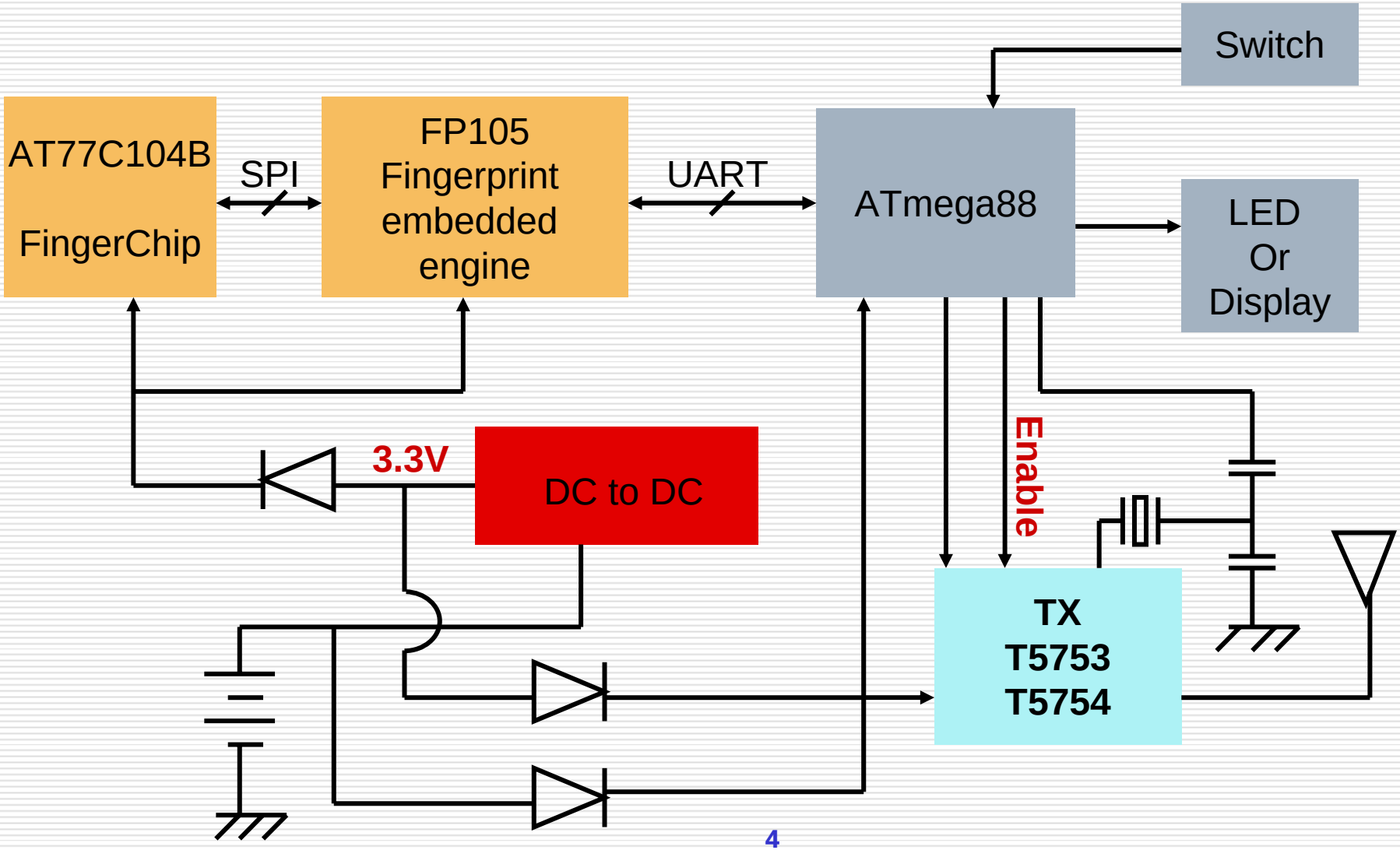
Agenda

- Block Diagram
- Key Features
- Fingerchip Strengths
- Systems RAC Satisfied
- Conclusion

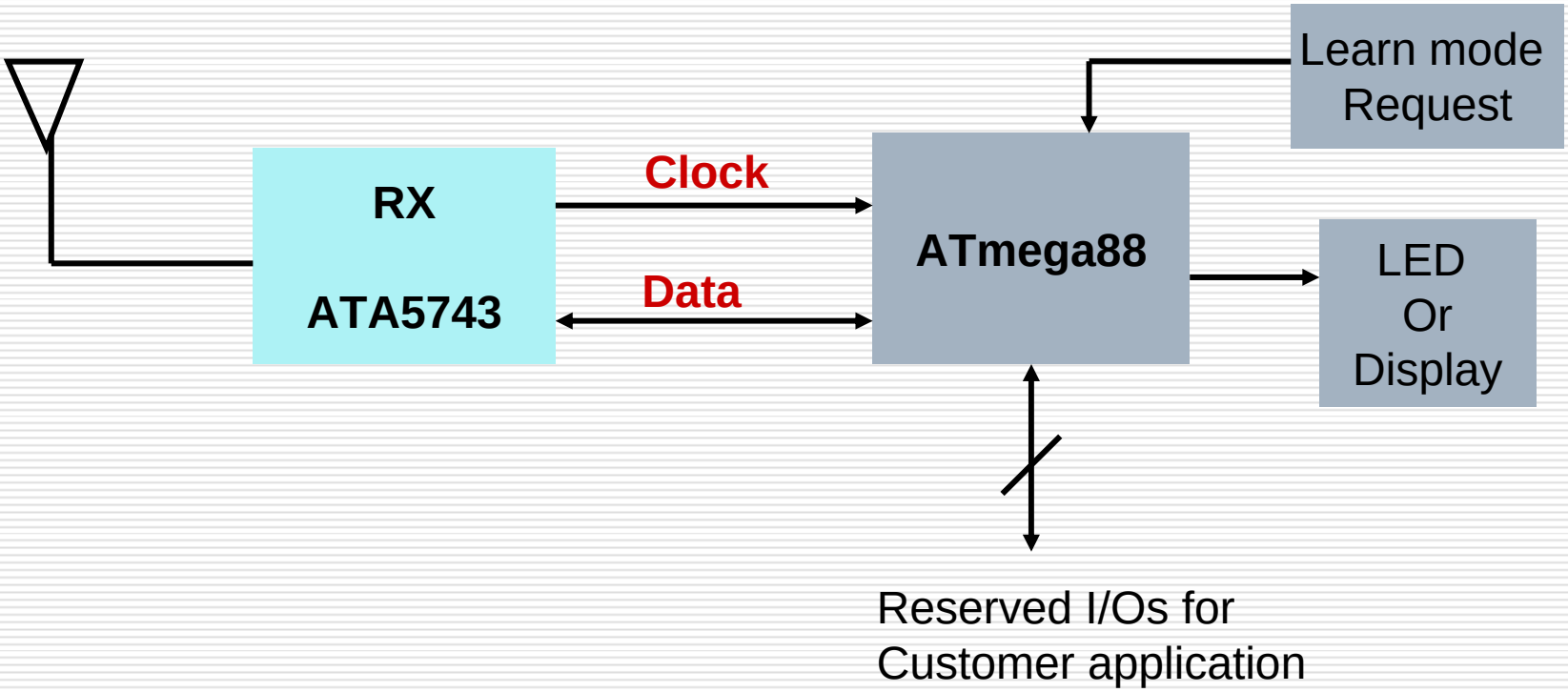
Block Diagram



Block Diagram – Tx



Block Diagram – Rx



Key Feature

- Fingerprint on secure embedded system
  - enrollment、authentication
  - storage、deletion

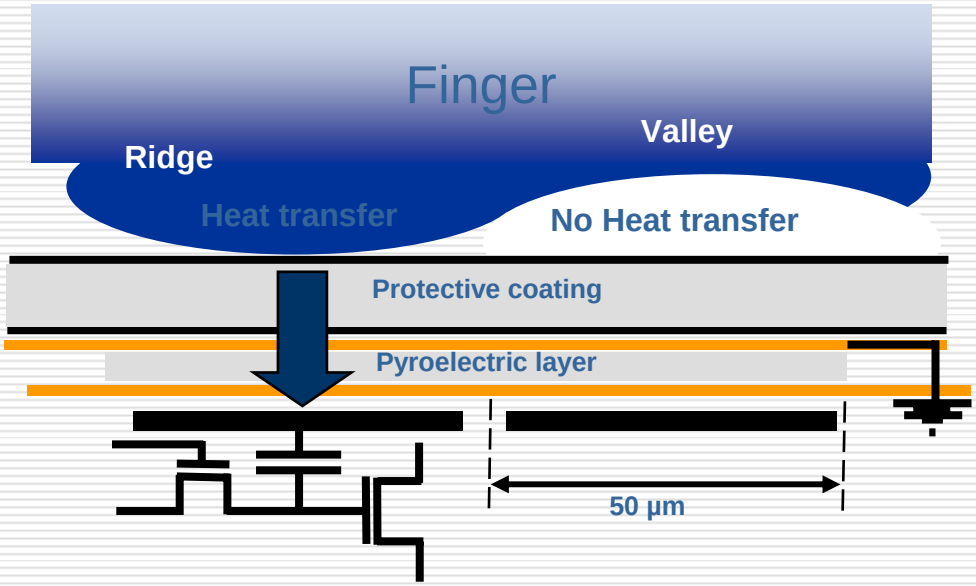
- Security level choose
  - without security
  - low security
  - high security, AES(128、192、256bits)

- Less than 30ms response time for transmission
- Automotive qualified device
- Few external components
- Low power consumption (uA at sleep mode)

FingerChip Strengths

- Superior Imaging Technology - Thermal Pixel
- Best Swipe Technology for difficult Fingerprints – Greasy、Wet Fingers
- Excellent resistance to ESD

FingerChip Thermal Tech.



Thermal imaging:

- Superb FAR, FRR due to high signal-to-noise ratio
- Pixel detection via heat transfer where skin touches the sensor
- Grounded Surface Electrode leading best ESD performance

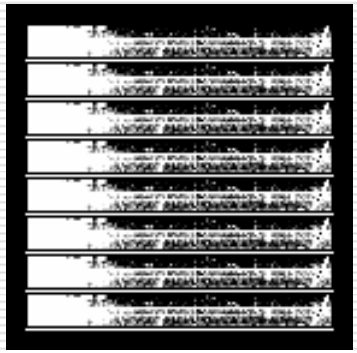
☐ Excellent Image Capture

- Variety fingerprints quality - dry、wet、greasy
- Drastic environmental conditions - extreme temperatures、high humidity、 dirt 、oil and water contamination

Fingerprints – Greasy Fingers

Atmel

U Company

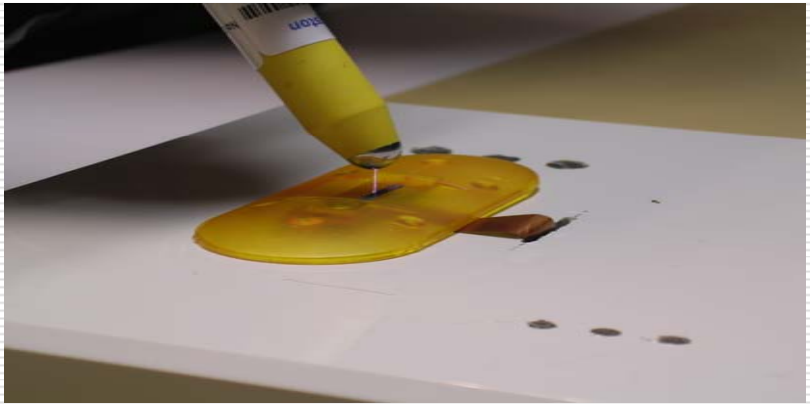


A Company

- Better image increase successful enrollment rate and improves user experience

Excellent resistance to ESD

- Method EN61000-4-2
- Air discharge +/- 16.5KV
- Contact discharge +/-9KV
- Human Body +/- 2kV



- No Special shielding
- No Grounding Plates in casing

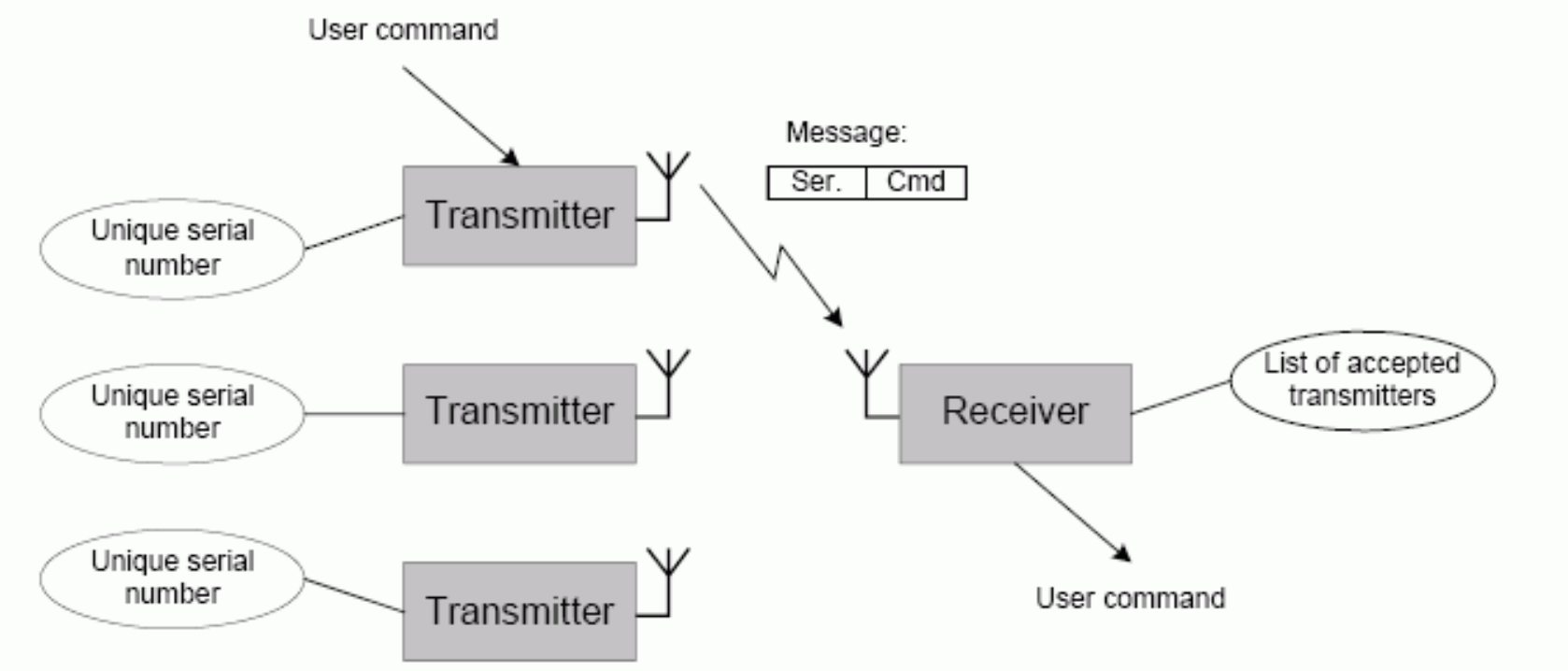
Systems RAC Satisfied

4 Goals can be set up for the final system:

1. Transmitters uniquely associated with a receiver
2. No two transmitted messages should be equal
3. The receiver should ignore repeated old messages
4. Impossible to predict future messages

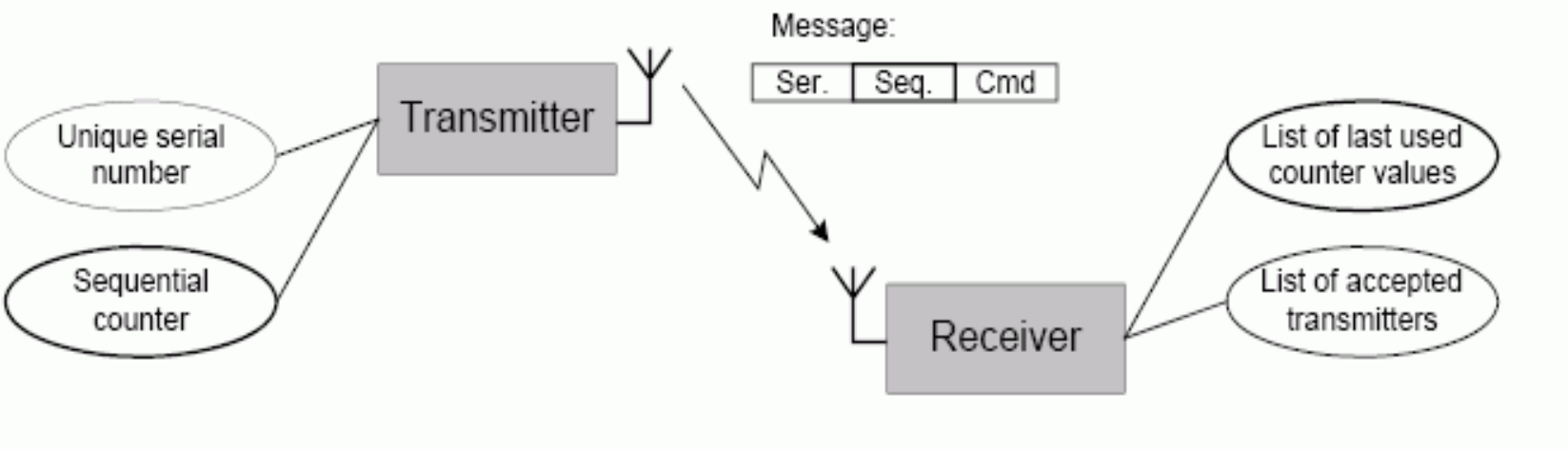
System Satisfy Goal1

- Unique transmitter IDs
- Lists of accepted transmitter IDs in receivers



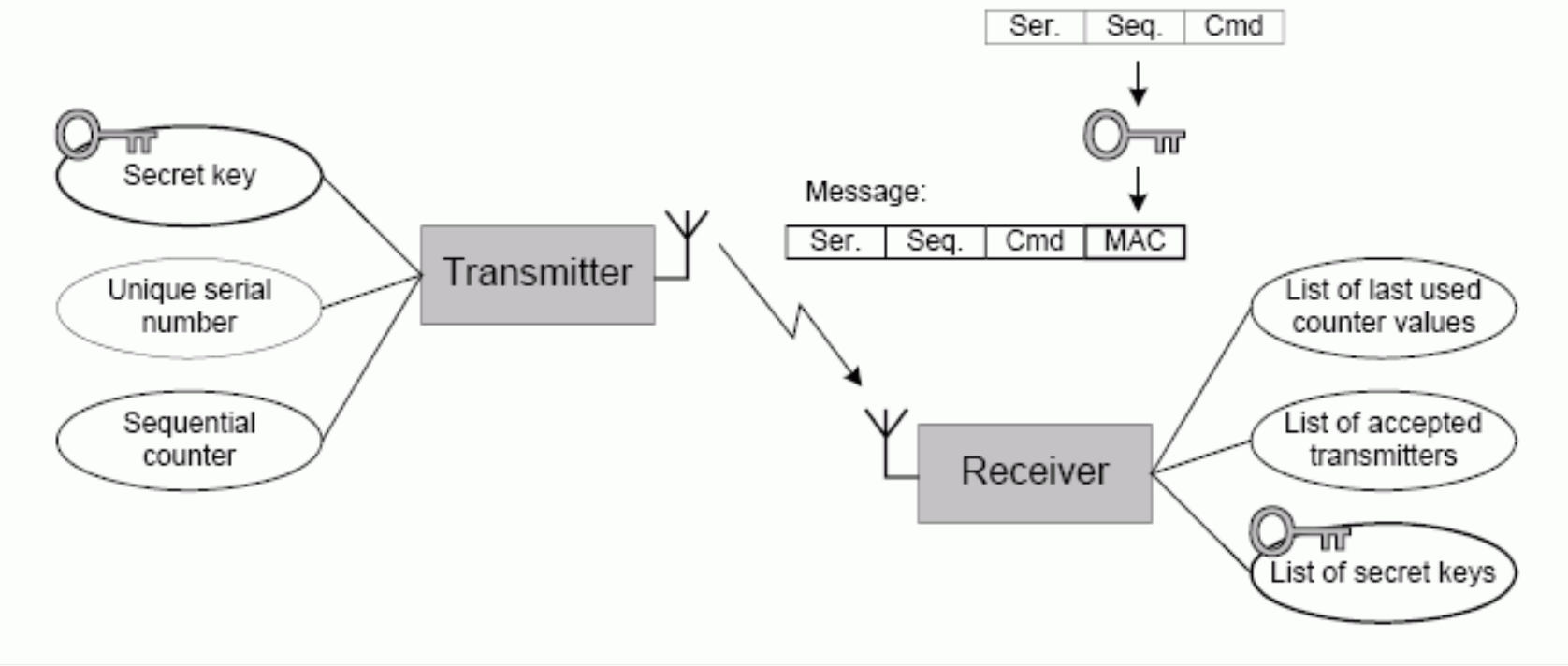
System Satisfy Goal1、2、3

- Include an increasing counter value in each message
- Keep track of last used counter values for every transmitter
- Requires synchronization mechanism



System Satisfy Goal1、2、3、4

- Include a secure message authentication code (MAC)
- Requires secure key management



Conclusion

Demo-board was made by Pantek and below are what Pantek can offer:

- Complete reference design schematic
- Completed reference design flowchart
- Production utility for on board flash
- Reference design demo board
- Fully technical support