SNS COLLEGE OF ENGINEERING

Kurumbapalayam(Po), Coimbatore – 641 107
Accredited by NAAC-UGC with 'A' Grade
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Department of Information Technology

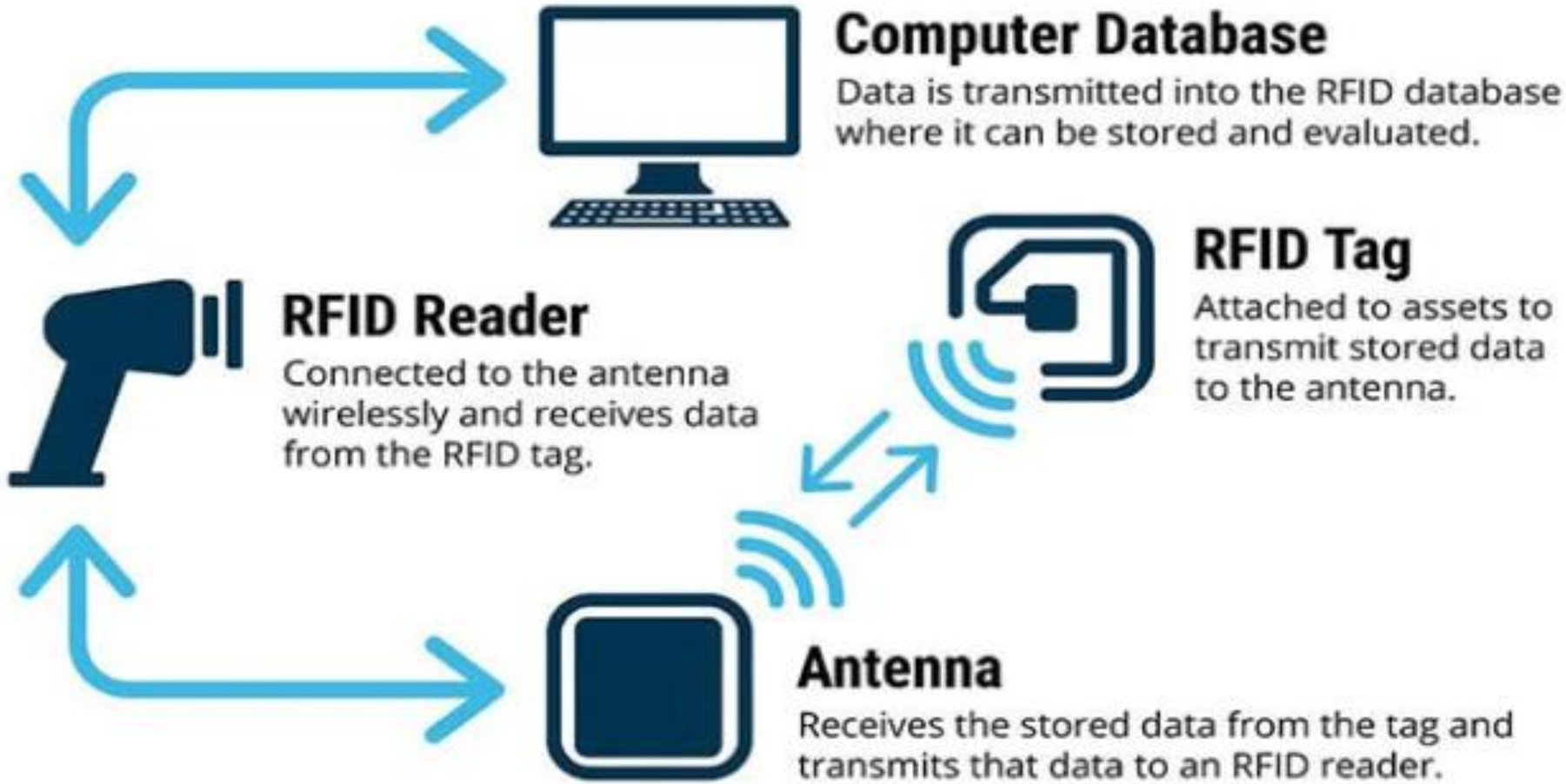
Course Name – Internet of Things & AI

III Year / V Semester

CONNECTIVITY TECHNOLOGY AND COMMUNICATION PROTOCOLS IN IOT

Key components of RFID

- An RFID tag
- An RFID antenna
- An RFID reader
- An RFID station


Computer Database
Data is transmitted into the RFID database where it can be stored and evaluated.
RFID Tag
Attached to assets to transmit stored data to the antenna.
RFID Reader
Connected to the antenna wirelessly and receives data from the RFID tag.
Antenna
Receives the stored data from the tag and transmits that data to an RFID reader.


tag
reader
traffic
monitoring camera
E-ZPass
tag
traffic
gate
5
MPH
REDUCE
SPEED
PASS

Readers

The reader is a device which has one or more antennas that send and receive electromagnetic signals back from RFID tags

There are two types of readers:

- **Fixed readers**, when the reader and antenna are installed in a specific place where RFID tags pass. For example, you can check out at Amazon Go without going to a cashier. You just walk through an RF zone and the reader receives the tag data.
- **Mobile readers,** which are handheld devices that can be carried anywhere.

Once you have the equipment, the RFID tracking process can be broken down into four phases:

- Information is stored on a RFID tag and is attached to an item like your product
- An antenna recognizes the signal of a nearby RFID tag
- A reader is connected wirelessly to the antenna and receives the information stored on a tag
- The reader then sends the data to a database, where it is stored and evaluated.

Tags

There are two common types of RFID tags:

- **Active:** tags that have their own power source and can read range up to 100+ meters. Active tags are used by companies where asset location or logistics improvements are important.
- **Passive:** tags that don’t have a power source. Electromagnetic energy from the reader powers these tags. This gives them a read distance from close contact to 25 meters.

- Passive tags are most often used in RFID applications.
- You can embed them into an adhesive label or into the object itself.
- Passive tags are low-cost, so they are better in situations where you won’t reuse them.
- For example, if you receive a case of products, the supplier may attach passive tags to it. When you remove the products and throw out the case, the tags are also scrapped.