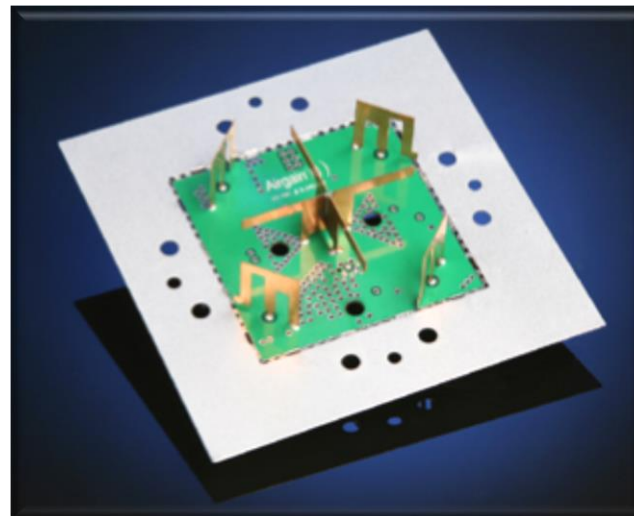


# Telecommunication - Airgain Smart Antenna

GEN TRIZ Case Study

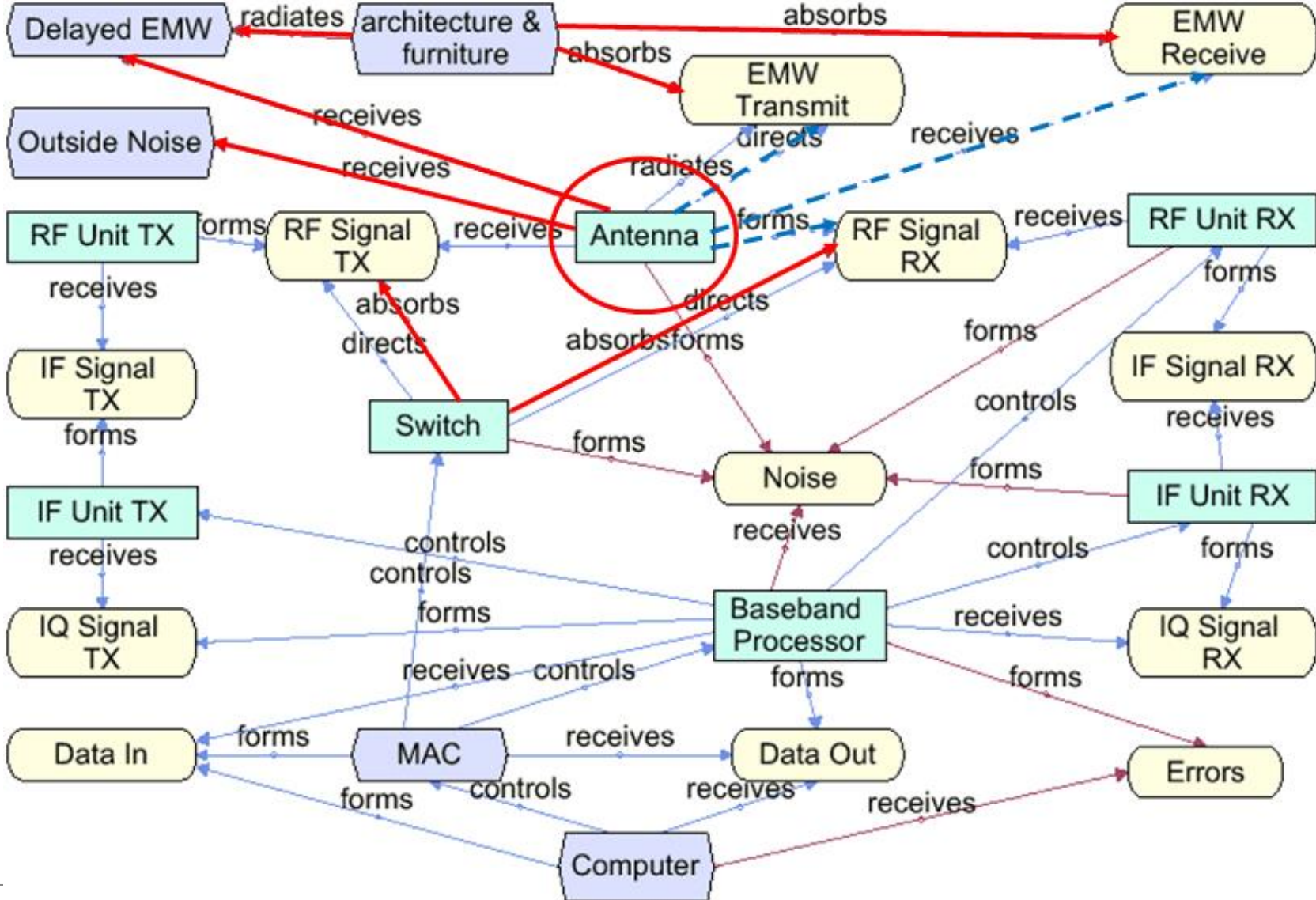
## Case Study: Smart Antenna

- GEN TRIZ developed several designs and solutions for smart antennas representing key elements of any IoT device:
  - A smart antenna is an antenna that uses directional antennas, but has the ability to steer the beam in any direction
  - Some kind of antenna array that can produce multiple beams is hooked up to some fast switches so that the beam can be quickly pointed in the optimum direction to maximize the signal strength
  - Using beam-switched gain antennas on both ends of the link, enables optimal performance to the conditions
- Airgain's MaxBeam 75 is designed for use in Wi-Fi APs, routers, and gateways used in enterprise and home networks



# Case Study: Smart Antenna

Partial function of a reference wireless connection unit



# Case Study: Smart Antenna

## Wi-Fi Signal. Movement Sensing / Breath Detection

- GEN TRIZ proposed a concept where any change in the physical WiFi environment – if somebody is walking or even just breathing within the coverage area – results in changes in the WiFi signal strength
- This generally undesirable effect could be used intentionally as a free source of additional information; for example:
  - Remote breath control of patients in hospitals
  - Intrusion detection for home alarm systems
- In terms of business impact, Airgain Company went public in 2016 with a pretty high valuation and currently continue growing



Wi-Fi unit analyzes changes in the signal strength and identifies if, e.g. a patient keeps breathing and how often; whether he/she is alone in the room, etc. It puts this information on the cloud or sends a notification directly to patient's doctor.  
Or sends signal to police in case of intrusion detector

