



Code Contribution: Implementation of the B-MAC Protocol for WSN in MiXiM

Dr. Anna Förster,
University of Applied Sciences of Southern Switzerland



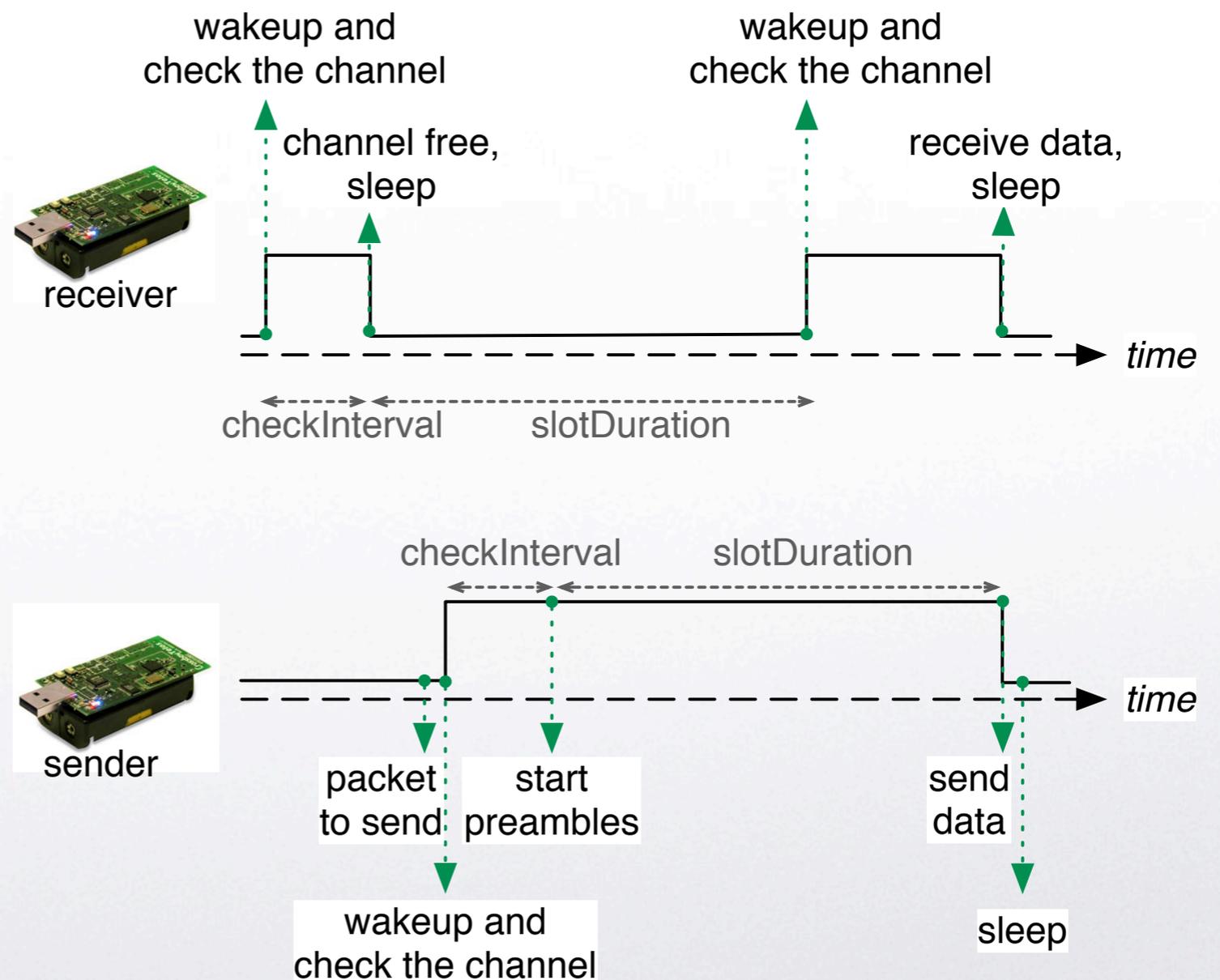
Motivation

- Traditional WSN MAC protocols are missing in MiXiM
- B-MAC is standard for TinyOS, Contiki and other WSN operating systems
- Simple, general-use, low power protocol



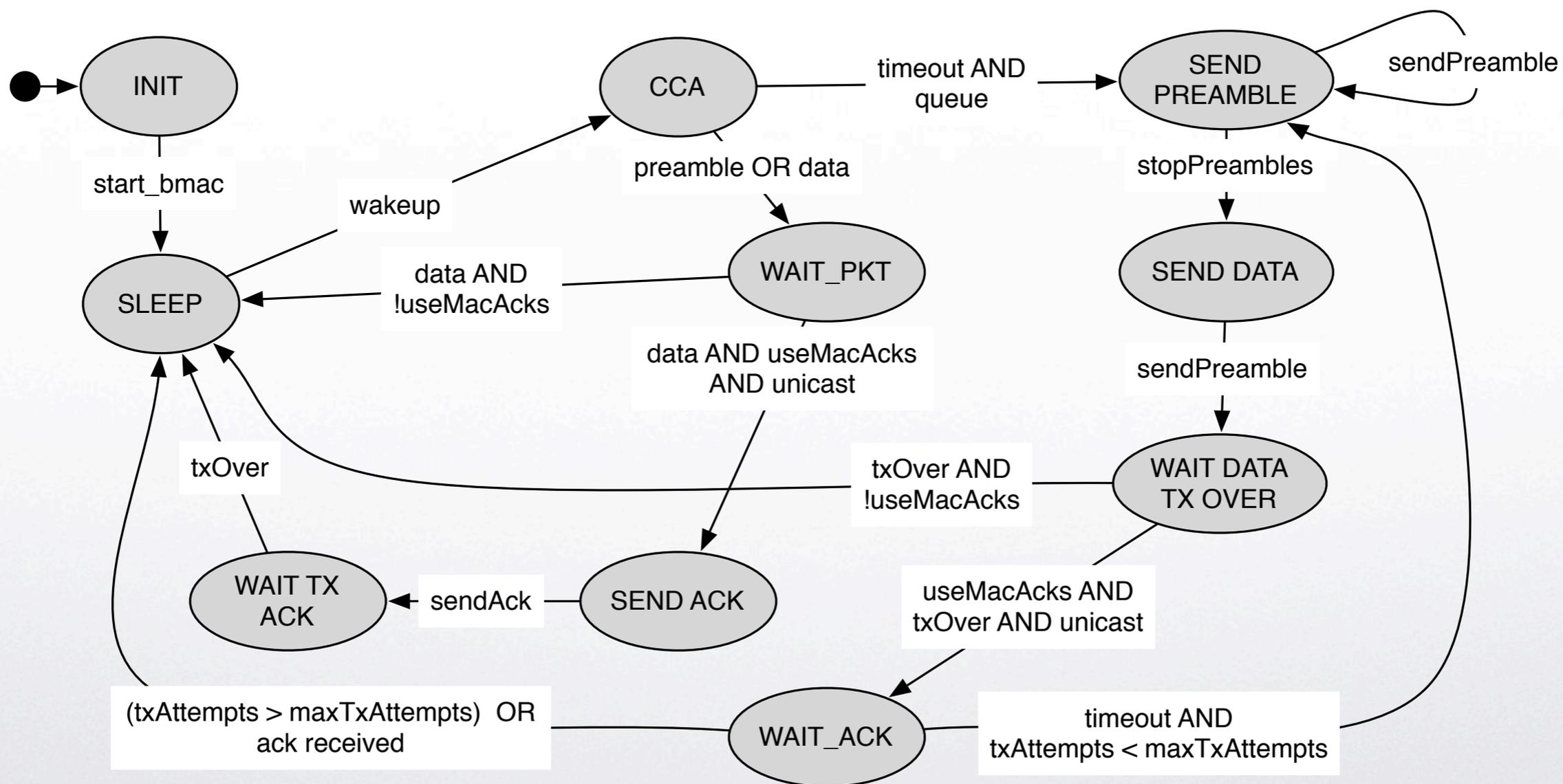
B-MAC (Low Power)

- Asynchronous protocol
- Wakeup period same for all nodes
- Sender sends long preambles before actual data packets
- Receivers wake-up and stay awake if a preamble is received or go immediately back to sleep





B-MAC in MiXiM





B-MAC in MiXiM

- Inherited from BaseMacLayer
- Easily extendable into X-MAC
- Various parameters to tune and adapt to application requirements

Parameter	Unit	Default	Description
slotDuration	secs	1	sleeping period
checkInterval	secs	0.1	duration of CCA phase
queueLength	pkts	10	maximum size of MAC queue
headerLength	bits	10	preamble packet length
useMacAcks	bool	false	use MAC level acknowledgments
maxTxAttempts	times	2	used only together with MAC level acknowledgments
txPower	mW	50	actual transmission power
bitrate	bps	15360	bitrate of the node
animation	bool	true	colorize the nodes according to their radio status