Modbus extension and test program

This extension is built on my extension SerialOTG and uses the same library for serial communication. There are a few add on to enable single 16 bit register read and write to a device using ModbusRTU and ModbusTCP protocol. It can be used for ModbusRTU over serial, ModbusRTU bridged over WiFi or Bluetooth, and ModbusTCP over WiFi.

Methods

Init, Open, Close: see SerialOTG documentation

ret = ReadSingleInputRegister (slave, addr) using Function code 0x04
slave slave number 1-255
addr (0..65535)

ret = ReadSingleHoldingRegister (slave, addr) using Function code 0x03
slave slave number 1-255
addr (0..65535)

ret = WriteSingleHoldingRegister (slave, addr, data) using Function code 0x06
slave slave number 1-255
addr (0..65535)
data (0..65535)
ret <0 error

ret = ResponseSingle()
(get response from single register read or write)
ret = response. <0 error, 0..65535 response from read

Protocol(prot)
prot=0 RTU, prot=1 TCP

To build other messages:
ReadByte() WriteByte(n) see SerialOTG documentation.

b=HiByte(n) Return hi byte of an int

b=LoByte(n) Return low byte of an int

crc=CRC16Seed() Return start value for CRC calculation

crc=NewCRC(byte,crc) Add byte to crc, return new crc. Do this for every byte in message.
Note: Add Lobyte(crc), HiByte(crc) to end of RTU message.

How to use
Init, open, select baud parity etc if not the default values.

Send a request to read or write a single register.
Wait for the response. (A fixed time is easiest to implement)
Get ResponseSingle

Test program Modbus
Simple application to write, read and read with address increment
Uses ReadSingleHoldingReg, WriteSingleHoldingRegister.
InputReg and HoldingReg are often the same data area. Change to ReadSingleInputReg in the Appinventor blocks if necessary.

Note:
FC03 and FC04 specify read multiple registers but are used with nr registers =1 in this extension.