UART FUNCTIONS

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Hi friends,

This document provides functions for using UART on AVR controllers for communication with PC RS232 port. I've tested these functions using ATmega32, with little changes it can be adapted to other atmega devices as well.

Code:

```
//*************************************************************
**
//**** UART ROUTINES ******************
//*************************************************************
**
//Controller: ATmega32 (16MHz Crystal)
//Compiler: ICCAVR
//Author: CC Dharmani, Chennai
//*************************************************************
**

//*************************************************
//Function to initialize UART
//*************************************************
//UART0 initialize
// desired baud rate: 19200
// actual: baud rate:19231 (0.2%)(at 16MHz crystal)
// char size: 8 bit
// parity: Disabled

void uart0_init(void)
{
 UCSRB = 0x00; //disable while setting baud rate
 UCSRA = 0x00;
 UCSRC = BIT(URSEL) | 0x06;
 UBRRL = 0x33; //set baud rate lo
 UBRRH = 0x00; //set baud rate hi
 UCSRB = 0x98;
}
```

```
//*************************************************
//Function to receive a single byte
//*************************************************
unsigned char receiveByte( void )
{
  unsigned char data, status;

  while(!(UCSRA & (1<<RXC))); // Wait for incomming data

  status = UCSRA;
  data = UDR;

  return(data);
}

//*************************************************
//Function to transmit a single byte
//*************************************************
void transmitByte( unsigned char data )
{
  while ( !(UCSRA & (1<<UDRE)) ); //Wait for empty transmit
buffer

  UDR = data; //Start transmition
}


//*************************************************
//Function to transmit a string stored in Flash
//*************************************************
void transmitString_F(const unsigned char* string)
{
 while (*string)
   transmitByte(*string++);
}


//*************************************************
//Function to transmit a string from RAM
//*************************************************
void transmitString(unsigned char* string)
{
 while (*string)
   transmitByte(*string++);
```

```
}

//********************* END ********************
```

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