# 12 INTERNET COMMUNICATION and CONTROL – Code Snips

**Note: These Code Snips are taken straight from the book chapter; i.e. the “Program Examples”. In some cases therefore they are not complete programs.**

/\* Program Example 12.1: Ethernet write

\*/

#include "mbed.h"

#include "Ethernet.h"

Ethernet eth; // The Ethernet object

char data[]={0xB9,0x46}; // Define the data values

int main() {

while (1) {

eth.write(data,0x02); // Write the package

eth.send(); // Send the package

wait(0.2); // wait 200 ms

}

}

Program Example 12.1: Ethernet write

/\* Program Example 12.2: Ethernet read

\*/

#include "mbed.h"

Ethernet eth; // Ethernet object

char buf[0xFF]; // create a large buffer to store data

int main() {

printf("Ethernet data read and display\n\r");

while (1) {

int size = eth.receive(); // get size of incoming data packet

if (size > 0) { // if packet received

eth.read(buf, size); // read packet to data buffer

printf("size = %d data = ",size); // print to screen

for (int i=0;i<size;i++) { // loop for each data byte

pc.printf("%02X ",buf[i]); // print data to screen

}

pc.printf("\n\r");

}

}

}

Program Example 12.2: Ethernet read

/\* Program Example 12.3: Opening an Ethernet network interface

\*/

#include "mbed.h"

#include "EthernetInterface.h"

EthernetInterface eth; // create ethernet interface

int main() {

eth.init(); // initialise interface with DCHP

eth.connect(); // connect and open communications

printf("IP Address is %s\n", eth.getIPAddress()); // display IP address

eth.disconnect(); // disconnect

}

Program Example 12.3: Opening an Ethernet network interface

/\* Program Example: 12.4 mbed file server setup

\*/

#include "mbed.h"

#include "EthernetInterface.h"

#include "HTTPServer.h"

#include "FsHandler.h"

EthernetInterface eth; // define Ethernet interface

LocalFileSystem fs("webfs"); // define Local file system

HTTPServer svr; // define HHTP server object

int main() {

eth.init("192.168.1.101","255.255.255.0","192.168.1.1"); // initialise

eth.connect(); // connect Ethernet

HTTPFsRequestHandler::mount("/webfs/", "/"); // mount file server handler

svr.addHandler<HTTPFsRequestHandler>("/"); // add handler to server object

svr.start(80, &eth); // bind server to port 80

while(1)

{

svr.poll(); // continuously poll for Ethernet messages to server

}

}

Program Example 12.4 mbed file server setup

/\* Program Example 12.5 Remote Procedure Calls example

\*/

#include "mbed.h"

#include "EthernetInterface.h"

#include "HTTPServer.h"

#include "mbed\_rpc.h"

RpcDigitalOut led1(LED1,"led1"); // define RPC digital output object

EthernetInterface eth; // define Ethernet interface

HTTPServer svr; // define HHTP server object

int main() {

RPC::add\_rpc\_class<RpcDigitalOut>();

eth.init("192.168.1.101","255.255.255.0","192.168.1.1"); // initialise

eth.connect(); // connect Ethernet

svr.addHandler<HTTPRpcRequestHandler>("/rpc"); // add RPC handler

svr.start(80, &eth); // bind server to port 80

while(1){

svr.poll(); // continuously poll for Ethernet messages to server

}

}

Program Example 12.5: Remote procedure calls example

/\* Program Example 12.6 Using RPC variables for remote mbed control

\*/

#include "mbed.h"

#include "EthernetInterface.h"

#include "HTTPServer.h"

#include "mbed\_rpc.h"

PwmOut led1(LED1); // define standard PWM output object

EthernetInterface eth; // define Ethernet interface

HTTPServer svr; // define HTTP server object

int RemoteVarPercent=0;

RPCVariable<int> RPC\_RemoteVarPercent(&RemoteVarPercent,"RemoteVarPercent");

int main() {

RPC::add\_rpc\_class<RpcPwmOut>();

eth.init("192.168.1.101","255.255.255.0","192.168.1.1"); // initialise

eth.connect(); // connect Ethernet

svr.addHandler<HTTPRpcRequestHandler>("/rpc"); // add RPC handler

svr.start(80, &eth); // bind server to port 80

while(1){

svr.poll(); // continuously poll for Ethernet messages to server

led1=float(RemoteVarPercent)/100; // convert to fraction

}

}

Program Example 12.6 Using RPC variables for remote mbed control

/\* Program Example 12.7: mbed HTTP client test

\*/

#include "mbed.h"

#include "EthernetInterface.h"

#include "HTTPClient.h"

EthernetInterface eth;

HTTPClient http;

char str[128];

int main() {

eth.init("192,168,1,101","255,255,255,255","192,168,1,1");

eth.connect();

printf("Fetching page data...\n");

http.get("http://www.rt60.co.uk/mbed/mbedclienttest.txt", str, 128);

printf("Result: %s\n", str);

eth.disconnect();

}

Program Example 12.7: mbed HTTP client test