

Title: WHY USE UDP AS COMMUNICATION PROTOCOL?

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Intro

In this report we will discuss why we use UDP for the transmission of data.

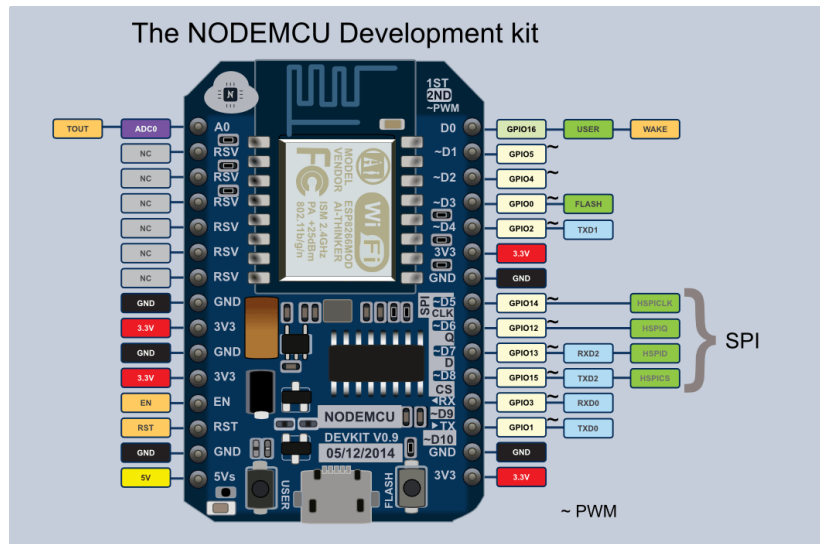
Materials and Methods

Method to use UDP with our NODEMCU

Firstly I need to point out that the NodeMCU pin numbers on the board DO NOT match up with the digital pin numbering when using the Arduino IDE. The Labels for GPIO number in the image below show how the NodeMCU pin number corresponds to digital and analogue pin numbering in the Arduino IDE. Secondly you will need to install WiFiUDP library for arduino and the UDP library for processing.

Now go ahead and connect your LED and Resistor up as shown in the wiring diagrams between D1 and Ground. Now we have completed the Hardware setup I suggest you upload the Pin IO Test Code. You should see the LED flash on and off once per second.

Now there are a number of methods that could be used for transmitting data over WiFi to the ESP8266. I have chosen to use UDP because it is simple and offers an easy method to transmit data between ESP8266 modules and between a PC running a Processing Script. Now there is very little set up to do here Firstly edit these two lines with the details of the WiFi network that your laptop is connected to.



Results

Information & conclusion

What is UDP?

UDP uses a simple connectionless communication model with a minimum of protocol mechanism. UDP provides checksums for data integrity, and port numbers for addressing different functions at the source and destination of the datagram. It has no handshaking dialogues, and thus exposes the user's program to any unreliability of the underlying network; There is no guarantee of delivery, ordering, or duplicate protection. If

error-correction facilities are needed at the network interface level, an application may use the Transmission Control Protocol (TCP) or Stream Control Transmission Protocol (SCTP) which are designed for this purpose.

Why UDP?

UDP is suitable for purposes where error checking and correction are either not necessary or are performed in the application; UDP avoids the overhead of such processing in the protocol stack. Time-sensitive applications often use UDP because dropping packets is preferable to waiting for packets delayed due to retransmission, which may not be an option in a real-time system.

Referencelist

Extra Documents