**CHAPTER 5**

**Discussion and Conclusion**

This chapter represents about the conclusion of the thesis. It also provides information about this system that will make it easy for the users by a wide range of comparison among MQTT and HTTP.

**5.1. Discussion and Conclusion of the System**

MQTT is a publish-subscribe-based messaging protocol used in the internet of Things. It works on top of the TCP/IP protocol, and is designed for connections with remote locations or the network bandwidth is limited. The goal is to provide a protocol, which is bandwidth-efficient and uses little battery power. The Hypertext Transfer Protocol is an application protocol for distributed, collaborative, hypermedia information systems that allows users to communicate data on the World Wide Web. HTTP uses a request/response paradigm where each device connects directly to the IoT Agent. MQTT is different in that publish-subscribe is event-driven and pushes messages to clients. It requires an additional central communication point (known as the MQTT broker) which it is in charge of dispatching all messages between the senders and the rightful receivers. Each client that publishes a message to the broker, includes a topic into the message. The topic is the routing information for the broker.

Each client that wants to receive messages subscribes to a certain topic and the broker delivers all messages with the matching topic to the client. Therefore the clients don’t have to know each other, they only communicate over the topic. This architecture enables highly scalable solutions without dependencies between the data producers and the data consumers. The system will compare and use MQTT and HTTP on IOT and show differences among them. HTTP has been widely applied for data transfer. However, in networks for IoT, this protocol causes a large overhead. To solve this problem, named based transfer protocols have been discussed. This system compares the performance of HTTP with that of MQTT, a type of named based transfer protocol. Additionally, the system proposes enhancements to MQTT for better performance. Main solid benefits of MQTT are lightweightness and publish/subscribe model, which makes it perfect for resource-constrained devices and help to save battery. The system will present the broad comparison among HTTP and MQTT to introduce their characteristics comparatively. Afterwards, it presents their strengths and limitations. Thus, based on this detailed evaluation, the user can decide their appropriate usage in various IoT systems according to their requirements and suitability.

MQTT Protocol is easy to use. It is essential when response time, throughput, lower battery and bandwidth usage are on the first place for future solutions. It’s also perfect in case of intermittent connectivity.

HTTP is worthy and extendable. But MQTT is more suitable when it is referred to IoT development.

**Reference**

# Raspberry Pi Talking to ESP8266 Using MQTT

<https://www.instructables.com/id/Raspberry-Pi-Talking-to-ESP8266-Using-MQTT/?fbclid=IwAR0rYS7It2HCWdU2ijZxMOp8O27QNGy0HNFaBPxKaY2Fcdz-sxCgN1l5qa4>