LESSON 9: Stepping Motors

# Stepping Motor Exercises > Documentation

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link: https://dcsit.twiki.ucc.edu.gh/do/view/UCC\_Course/SteppingMotor

**Goal:**

*The exercise session was aimed at introducing the stepping motor and* how to program different step sequences for full step of half step movement and how to move the motor forward and backward.

## **Exercise 1: Make sure the connections are correct**

It was made sure that the 6 connections were correctl as shown in the circuit diagram given in the lecture note. The aim was to program the device to move in any number of steps that we desired to move.

## ***Exercise 2: Write a program to move the stepping motor by 2048 steps.***

A function was written to move the stepping motor in a single phase forward. It was also ensured that there was at least 25ms between each sequence. Two dimensional arrays were created to implement the coils and the steps in each sequence. The created function was called 512 times as required. *It was also observed that when the motor was set to move in 2048, it made a full 360 degree rotation.*

## **Exercise 3: Modify the stepping tables**

The multi-dimensional array which had the values for the sequences of steps was modified such that, full “forwardsStep”, “forward halfStep”, “backward halfStep” and a “backward fullStep” could be obtained. All the above said steps were tried out to check if the stepping motor actually moved in the specified direction. It was also ensured that the LED bulbs on the module blinked in the order required. This is so because, in the process of specifying the on/off steps for the bulbs, some mistakes were initially made which made the bulbs blink in sequence which did not correspond with the desired step sequence.

## **Exercise 4: Improve your program to give user control over its parameters** A stepper program was finally created for the whole device. This program had command line parameters which allows the user to set the speed, number of steps, the type of steps.

**Remarks**

In this exercise session I learnt how the stepping motor works and principles behind it.