## PROBLEM STATEMENT FOR MICROWAVE BASED ON STM32

## Contents

This Test Project proposal consists of the following documentation/files:

1. Microwave command schematic
2. Reference hex file
3. Task description

## Introduction

The project is to program a firmware to a real microwave based on STM32L053 microcontroller. The part of this test project is to create the low-level software, create the STM32CubeMX project and a small proof of concept program, to test all hardware. Description of project and tasks

**TASK 1 - DISPLAY**

* Displays should count 0 to 9 (1s delay between numbers ) in all displays after reset; 0000; 1111; 2222… 9999.
* After counting the display goes to idle, showing 1234.

### TASK 2 – KEYBOARD

* Every pressed button shows a number according to the table below:

|  |  |
| --- | --- |
| Time Cook | 0011 |
| Time Defrost | 0013 |
| Weight Defrost | 0015 |
| Power | 0017 |
| Clock | 0019 |
| Kitchen Timer | 0022 |
| Popcorn | 0010 |
| Potato | 0012 |
| Pizza | 0014 |
| Frozen Vegetable | 0016 |
| Beverage | 0018 |
| Dinner Plate | 0021 |
| 0 To 9 | 0000 to 0009 |
| Stop | 0020 |
| Start  Start | 0023 |
|  |  |

### TASK 3 – DOOR

* When the door is open: dots are on. When is closed: dots are off;

### TASK 4 – BUZZER

* When turned on buzzer rings per 1 second, at 1kHz 50% duty;
* Every button pressed the buzzer should ring at 1kHz 50% duty during 100ms;
* Buzzer rings once even if the button is hold;

### TASK 5 – MOTOR AND LIGHT

* Is necessary to output a PWM, 1kHz 50% duty in “MOTOR\_LIGHT” to turn both on (light and motor) motor will always be switched off by hardware when the door is open.
* At the beginning, whilst counting from 0 to 9, the motor and light should be on, otherwise it should be off.