CHAPTER 1

INTRODUCTION

1.1 PROJECT BACKGROUND

In history of mug, ancient mugs were usually carved in wood or bone, or shaped of clay, while most modern ones are made of ceramic materials such as bone china, earthenware, porcelain, or stoneware. Some are made from strengthened glass, such as Pyrex. Other materials, including enameled metal, plastic, or steel are preferred, when reduced weight or resistance to breakage is at a premium, such as for camping. A travel mug is insulated and has a cover with a small sipping opening to prevent spills. Techniques such as silk screen printing or decals are used to apply decorations such as logos or images, which are fired onto the mug to ensure permanence.

Mug is a type of cup typically used for storing hot beverages, such as coffee, tea, hot chocolate or even soup. Hot beverages such as tea, hot chocolate, and coffee are frequently served at temperatures between 160 °F (71.1 °C) and 185 °F (85 °C). Mug commonly has handles and holds a larger amount of fluid than other types of cup.

As we know, people nowadays are likely to spend their life with mug of beverage either in hot or cold. Furthermore, caffeine consumption is on the rise. As coffee chains like Starbucks and Dunkin’ Donuts offer larger sizes, Americans are consuming more of the stimulant than ever, according to a recent report by Bank of America (Lutz, 2015). The average daily intake of caffeine grew from 120 mg/day in 1999 to 165 mg per day in 2010, according to the report. Bank of America’s analysts studied how much caffeine different age groups consume. People tend to consume more caffeine as they get older. In adults, total caffeine intake ranged from 122 to 143 mg/day. Coffee (49.5 mg/day) and tea (36.2 mg/day) were the greatest contributors of daily caffeine intake, followed by the in this study combined
category of soft drinks and energy drinks (34.5 mg/day) (Vester and Koenig, 2017). After retirement, consumption drops again (Lutz, 2015). The result can be referring to the Figure 1.1. Therefore, it proved that the demand of the beverage upon a person is higher especially towards the adult who is working. Besides, the demand of beverages also can be referred to the Figure 1.2.

![Chart 5: Caffeine — Mg/day by age group (2010-2011)](image1)

Figure 1.1: The demand of caffeine by age group in 2010-2011 (Lutz, 2015).

![Chart 6: Per capita consumption (gallons)](image2)

Figure 1.2: The type beverages demand per capita consumption (gallons) of 2003 and 2013 (Lutz, 2015).

In a statistic from a well-known company named Starbucks, people around the world spent over $10 billion on beverages at Starbucks in 2014. In 2015, Starbucks Corporation (NASDAQ: SBUX) is up almost 40% and hit an all-time high (Khatri, 2015). In addition, the
cups used are around 4 billion and it would be 35 times longer than the entire TGWC. Besides, on average 1.4 cups/day of coffee drink by American people while 28,985 cups/s of coffee people consume around the world (Susan, 2015).

![Starbuck's sales by product category 2013](image)

Figure 1.3: The Starbuck’s sales by product category in 2013 (Richter, 2014).

The intake of beverage on our life like coffee or tea will increases the productivity of our daily activities. Since, the caffeine inside it can use to stay alert and focus. Besides, it also brightens your mood, helps fight depression and lowers risk of suicide. Caffeine stimulates the central nervous system and boosts production of neurotransmitters like serotonin, dopamine, and noradrenaline, which elevate your mood. Two cups of coffee a day prevents risk of suicide by 50%. However, the consumption of too much caffeine in life is not encouraged since it has the negative effect on the overdose of taking it. The bad beverage will be not good for our life and can become toxic in our body. Thus, to have ideal types of beverages is the way it will be served. A better temperature can increase the productivity of the daily life and increase the mood to do work progressively. Lastly, a suitable environment needs to be set up in order to achieve the target of the temperature of beverages.