

# Bubble Tea Sugar Reminder

National Design Project 2023:

A project brought to you by **Team Suka**

Vinoth Sudin , Janakiraman Kaveri, Sheh Shahrezza & Ahmad Zaimuddin from  
**Fuhua Primary School**

# Our Problem Statement

Bubble tea can be a sinfully tasty beverage. Consumers of bubble tea tend to drink it a lot so it could lead to health issues such as diabetes.

Around 1 in 9 Singaporeans have diabetes. It has become a serious concern as diabetes can and will lead to a plethora of serious conditions such as heart attacks, strokes, kidney failures, blindness, amputations or even death if it is not controlled.

# Our Research Information about Bubble Tea



An incredibly unique-looking beverage, Bubble tea is a Taiwanese recipe made by blending a tea base with milk, fruit and fruit juices, then adding the signature “bubbles” - yummy tapioca pearls that sit at the bottom.

Boba tea is not the beneficial drink that everyone assumes it to be, namely because the tapioca pearls in the beverage, sweet and chewy though they may be, have no nutritional value, and are basically just empty calories, **carbohydrates and sugar**: lacking any vitamins or minerals, as well as having zero fibre content.

Some flavours do have health benefit such as the green tea. Green tea is a common base for bubble tea and is known to have a high antioxidant content and boosts the immune system. It has can boost your mood and energy boost without sugar crash for green tea.

# Nutri-grade, Sugar Level and Diabetes

The Nutri-Grade labelling and advertising prohibition measures for beverages sold in Singapore in pre-packaged form and from non-customisable automated beverage dispensers have come into effect.

From 30 December 2023, these requirements will be extended to freshly prepared beverages intended for sale at specified settings in Singapore. Additional labelling requirements will also be introduced to beverages under the current Nutri-Grade measures.

Diabetes is a serious health concern in Singapore. The number of Singapore residents with diabetes is projected to reach one million by 2050, if nothing is done. In response to the significant health and societal burden posed by diabetes, MOH launched the War on Diabetes in 2016 to mobilise a whole-of-society effort to tackle the disease.



# Our Proposed Solution

## The 'Bubble Tea Sugar Reminder'



Like it was mentioned in the previous slide, bubble tea is a delicious but unhealthy beverage. The green tea is one of the very few flavours that seems to have some health benefit, but it could also be undone by sugary additives or tapioca pearls which are high in carbohydrates.

To help spread awareness among fellow Singaporeans, we have come up with the Bubble Tea Sugar Reminder. This machine scans the mandatory nutri-grade strip on the cup and senses how much sugar the bubble tea contains and displays an advisory on a screen to the customer.

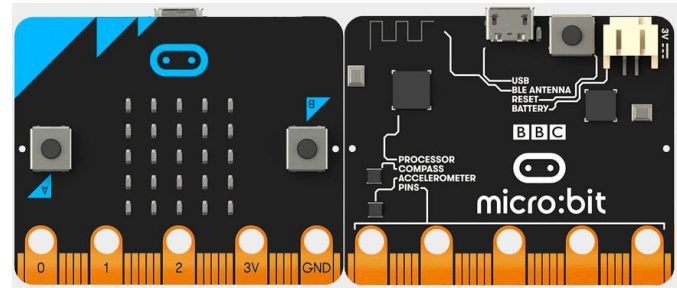
The advisory will give a short introduction about the bubble tea and will tell how regularly the consumer is advised to drink it. Hopefully, with the endorsement of the Health Promotion Board, every bubble tea shop would have to use the Bubble Tea Sugar Reminder in the process of handing each cup of the bubble tea to the consumer. As such, every consumer would have to see the recommended advice when receiving the bubble tea, giving a timely reminder to be more mindful about drinking the delicious beverage too often.

# The Main Parts and Functions

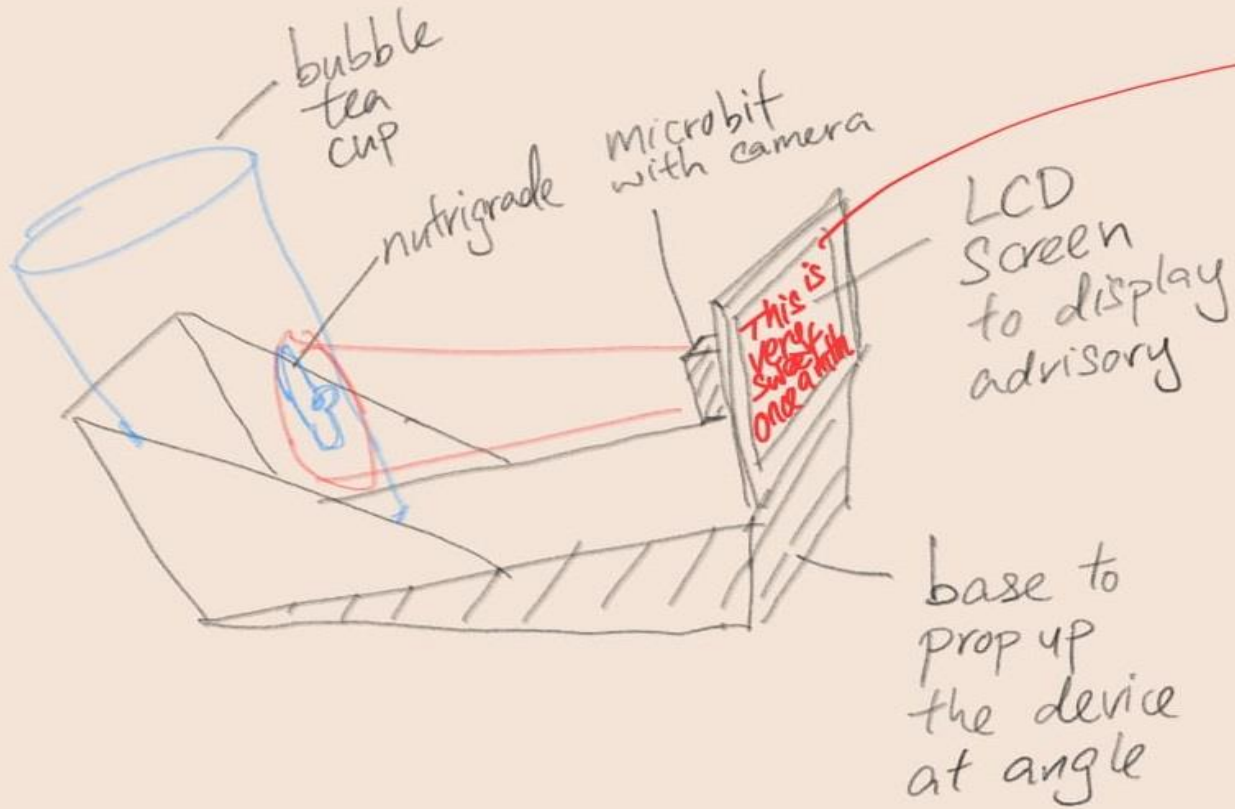
The microbit collects data from the AI lens attachment which scans for information using its camera. The AI lens will scan the nutri-grade label and determine the sugar level in the bubble tea. The seller would have to use appropriate nutri-grade labelled cups based on what the customers ordered.

According to the data collected from the captured image, it will show smiley face, flat mouth or sad face on the small LED screen of the microbit. With an extension, it can also play a video or slide on an LCD screen to display the short advisory and the reminder on how often one should consume the bubble tea depending on future improvement.

In our prototype, the microbit with the LED screen is hidden from sight. The LCD screen extension used is a simple one due to budget limitations. The actual machine should have a more interactive LCD screen and display more colourful advisories.



# Prototype Sketch

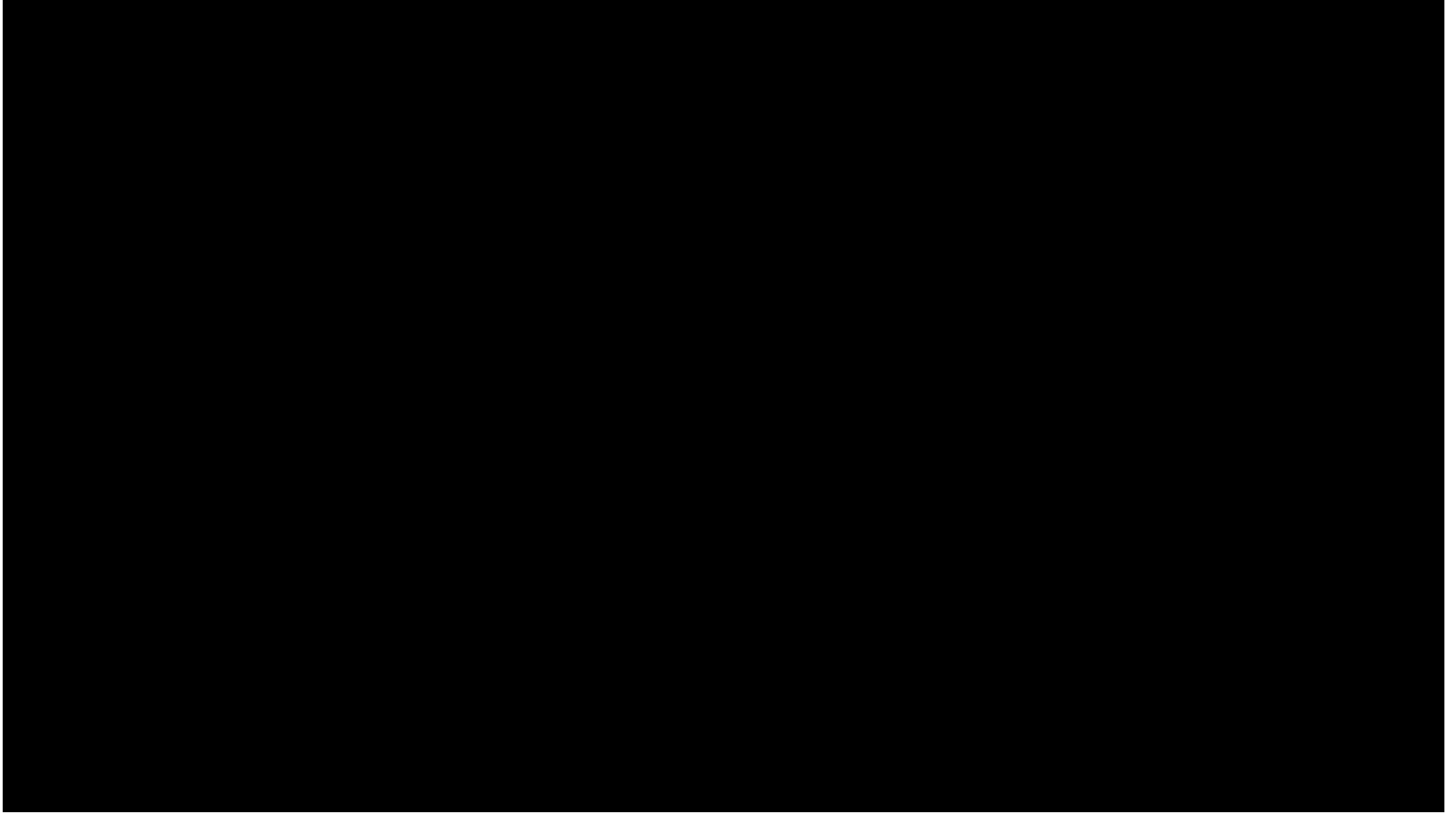


## Example

This drink is very tasty! However, it is very sweet.

Recommended to drink once a week only

Here is a short demonstration of the machine






# Future improvement

## Improved by the government or shops

Due to the limitation of materials in our prototype, we could not make the Bubble Tea Sugar Reminder to fit our vision.

1. Our simple AI lens can be replaced by a more advanced device for scanning the nutri-grade label. 
2. The LCD can be also replaced with a much bigger one that can show videos and images to make the display even more eye-catching so that consumers will not miss the messages flashed for them.
3. A speaker can also be incorporated to play soothing music to soften the mood and add voices to make the messages more impactful. The idea is to remind the consumers about the health concerns, not to rebuke them for drinking the bubble tea.

Thank you!