



Chapter 13

Programming & Languages

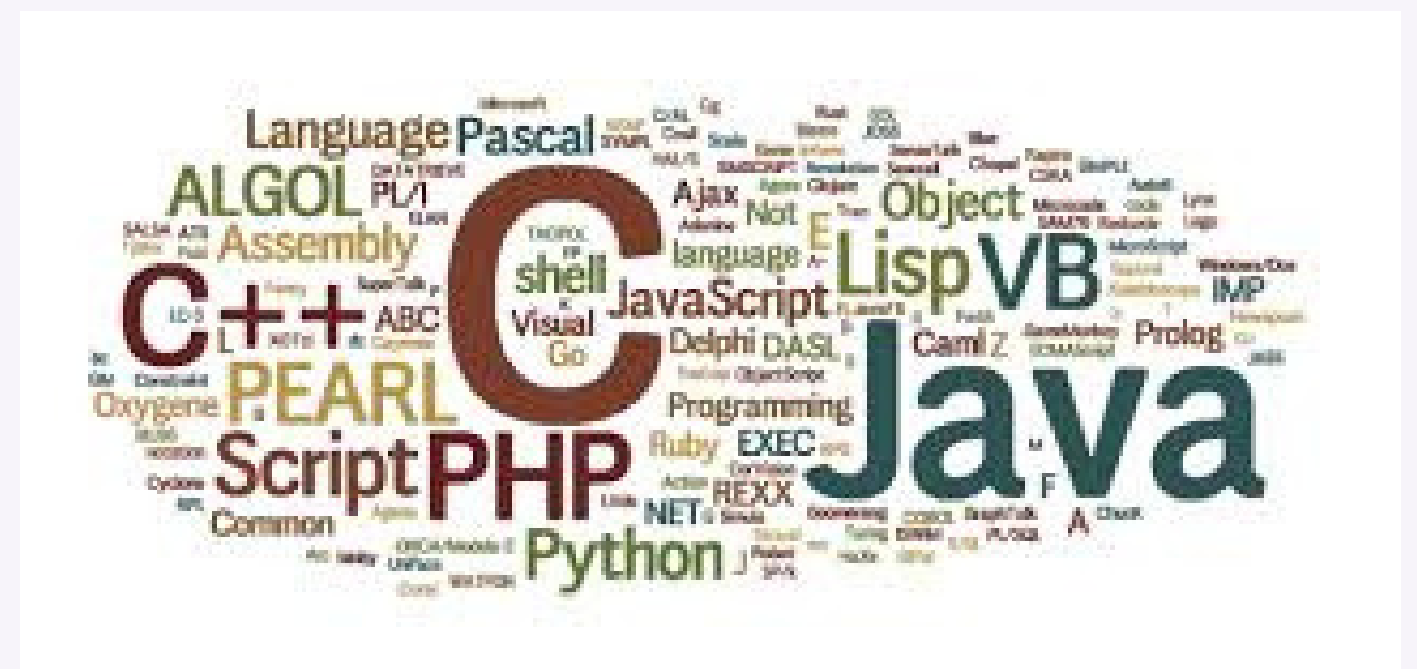
LOW WEI CHIEH
LIEW WEI XIAN
HAFIDZ NAILUL AUTHAR
ZHAO GUODONG

LANGUAGES

Programming refers to a process involving executable computer program to accomplish a computing task.

- Programming languages is a formal language and consists of instruction for computers. It are used in computer programming to implement certain algorithms.

PROGRAMMING



Design Thinking

1 Empathize

Finding the problems they experienced and our capability to **understand** the problems they faced.

2 Define

Put together the information we found during the empathy phase in order to **solve** one's problem.

3 Ideate

Come out with various possible solution.

4 Prototype

Transforming solution into a **physical** form.

5 Test

Testing the prototype by one's to **improve** our products.



EMPATHIZE

BIOGRAPHY™

NAME : LOW TAO PENG

AGE : 65

JOB : ECONOMIC RICE HAWKER



QUESTIONS

Hi uncle, can you briefly describe yourself?

Ok. My name is Low Tao Peng, I am 65 years old right now and I am working as an economic rice hawker.

So you still working everyday right now? What is the operating time of your hawker stall?

Yes I am still working right now because it is boring just staying at the house. I work from 6 a.m. to 3 p.m. and I often work during public holidays as well.

Oh I see, so you work only until 3 p.m., so what do you usually do during your free time?

Since my son have grown up and went to work, so during my free time I usually so buy the ingredients for tomorrow. Or else I will be sitting at the living room to watch some television programme with my wife or just scrolling through my phone.



Wow so I see that you can use a smartphone?

Yes, my son bought that for me. But I can only perform some simple task and use Facebook and Whatsapp. I still not fully understand how it works so sometime I still have to ask my son.

Don't worry my parents also just starting to use smartphone as well.

Oh and one thing, I also try to do some simple exercises during my free time in order to keep my health in good state.

Is there any reason behind this?

I have been having some kind of illness.

Uncle, may I know your brief history of present illness?

I have heart and thyroid disease since 40s. I have hypertension as well.

Uncle, how those diseases affected your daily life?

I have to take my medication on time but now I begin to become forgetful. I remembered that I once admitted to hospital as I skipped medication and I could not do my job for few days.

Sorry to hear that.

I was lucky that time because my wife is just around me when all that happened. I was told I almost suffered from stroke as his blood pressure is very high. Since that incident, I am starting to work out. Though sometimes I still forgot to take my medication.

From there, we
know...

- Our client
always forgets
to consume
medication on
time.

- Once admitted to
hospital as he
skipped medication
heedlessly. He was
lucky because his
wife was around
that time.



EASY

- Hire health caretaker
- Set an alarm to remind him to take medication

INTERMEDIATE

- Develop a mobile healthcare app
- Invent a smart healthcare wristband.

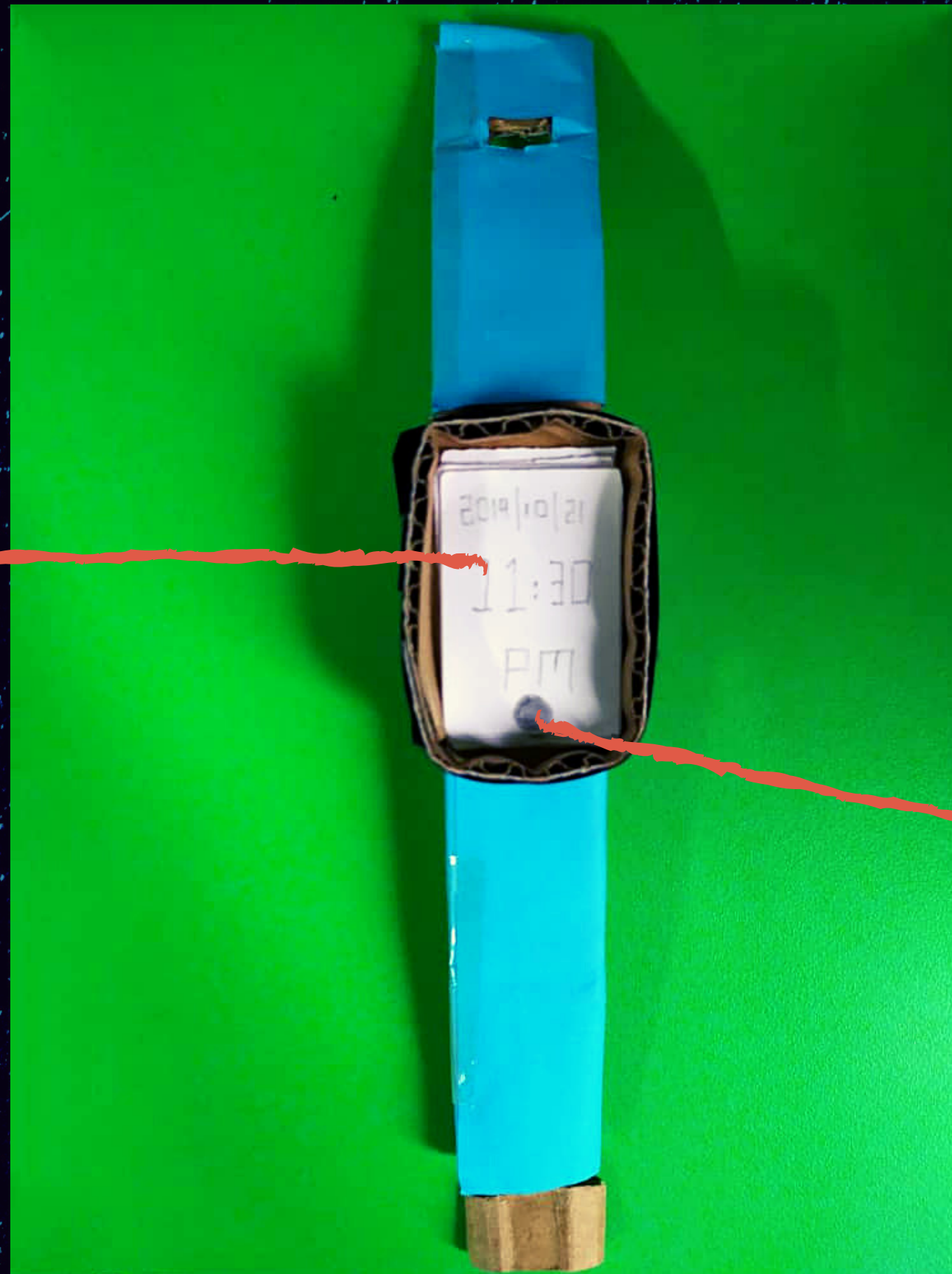
RADICAL

- Invent a belt that can stores medication
- Invent a healthcare robot

IDEATE

APPEARANCE

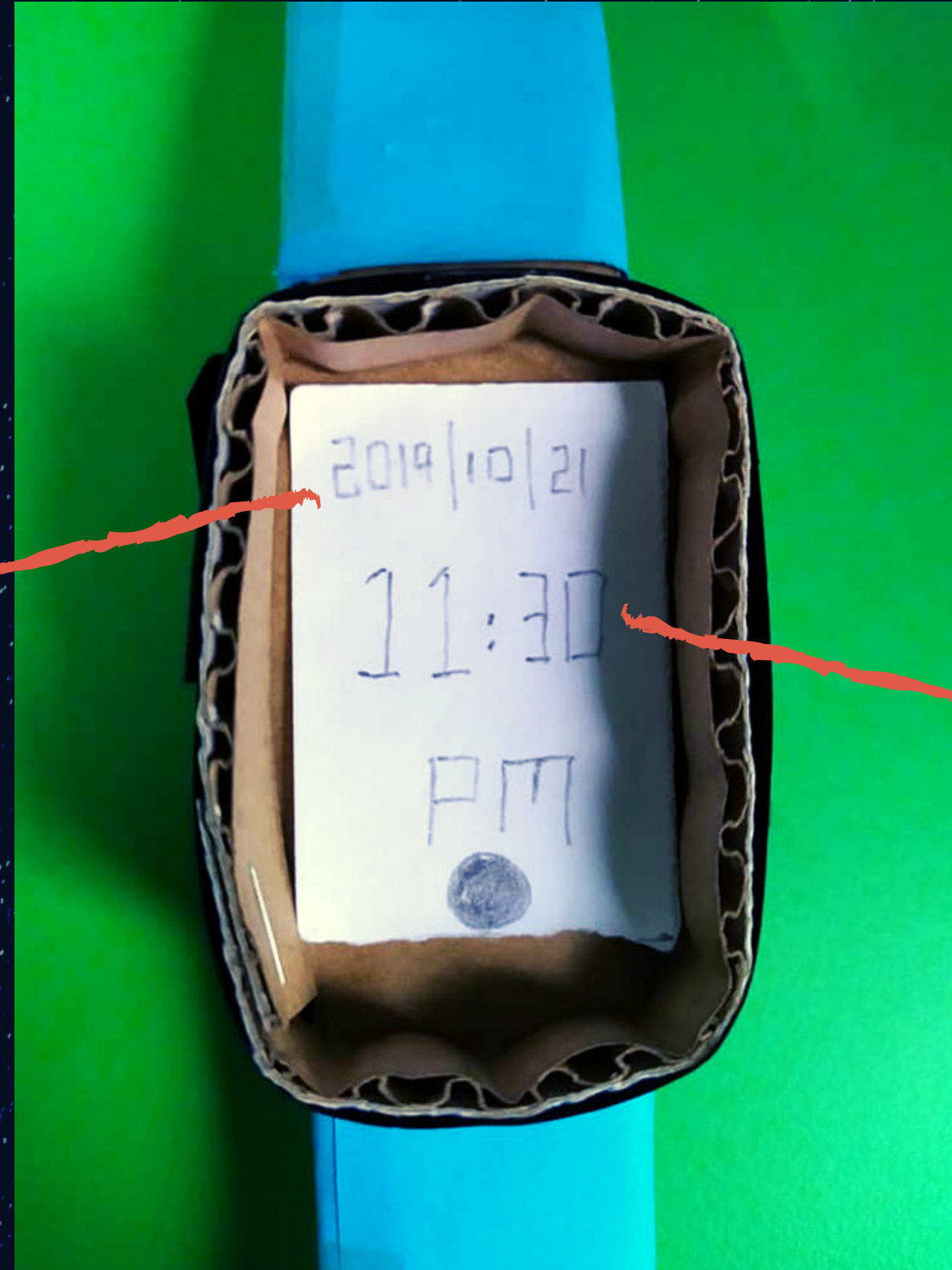
INTERFACE



NOTCH

TIME & DATE INTERFACE

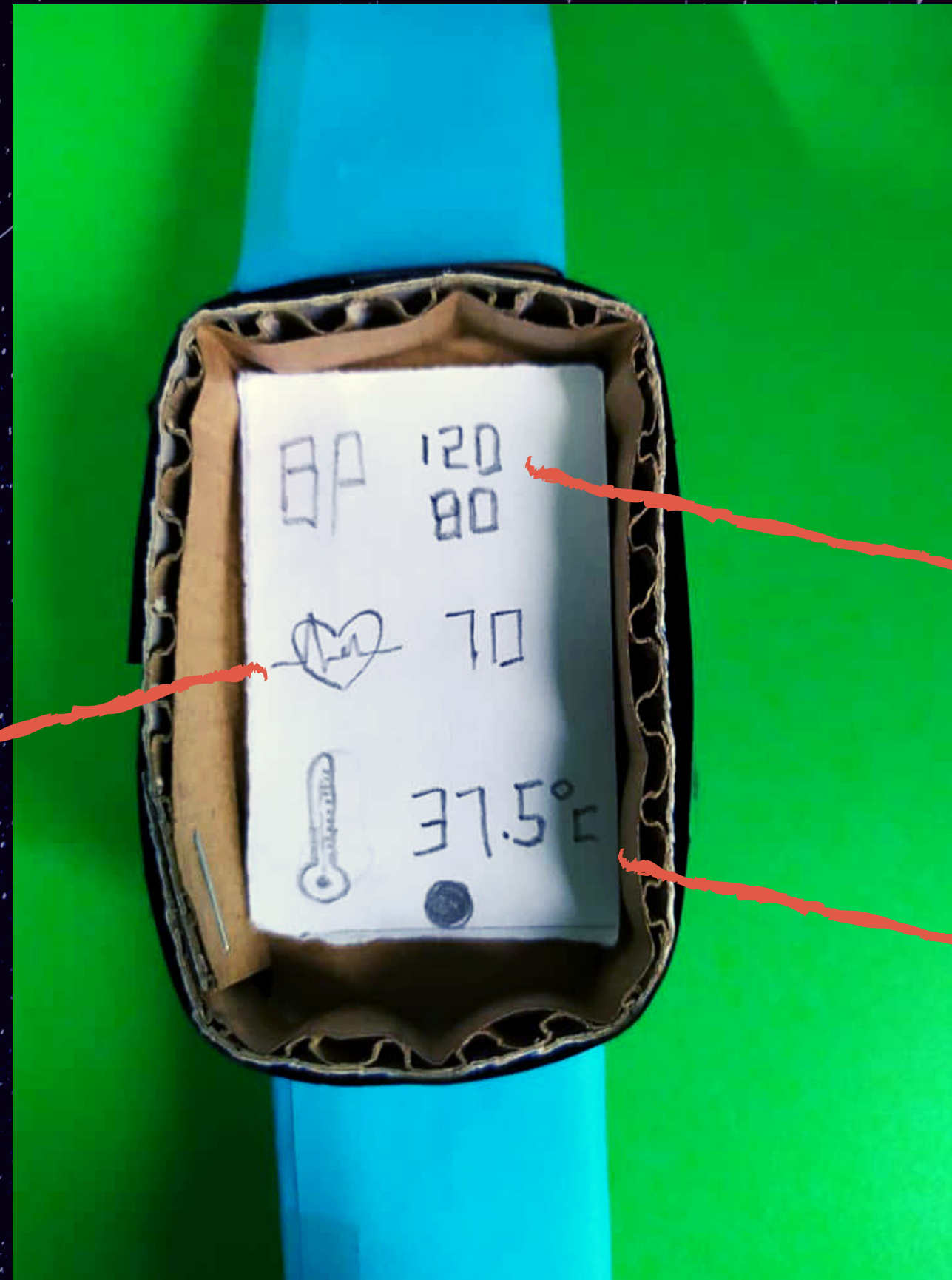
DATE



TIME

BODY CONDITION INTERFACE

HEARTBEAT
MEASUREMENT



BLOOD
PRESSURE
MEASUREMENT

BODY
TEMPERATURE
MEASUREMENT

MEDICATION REMINDER INTERFACE

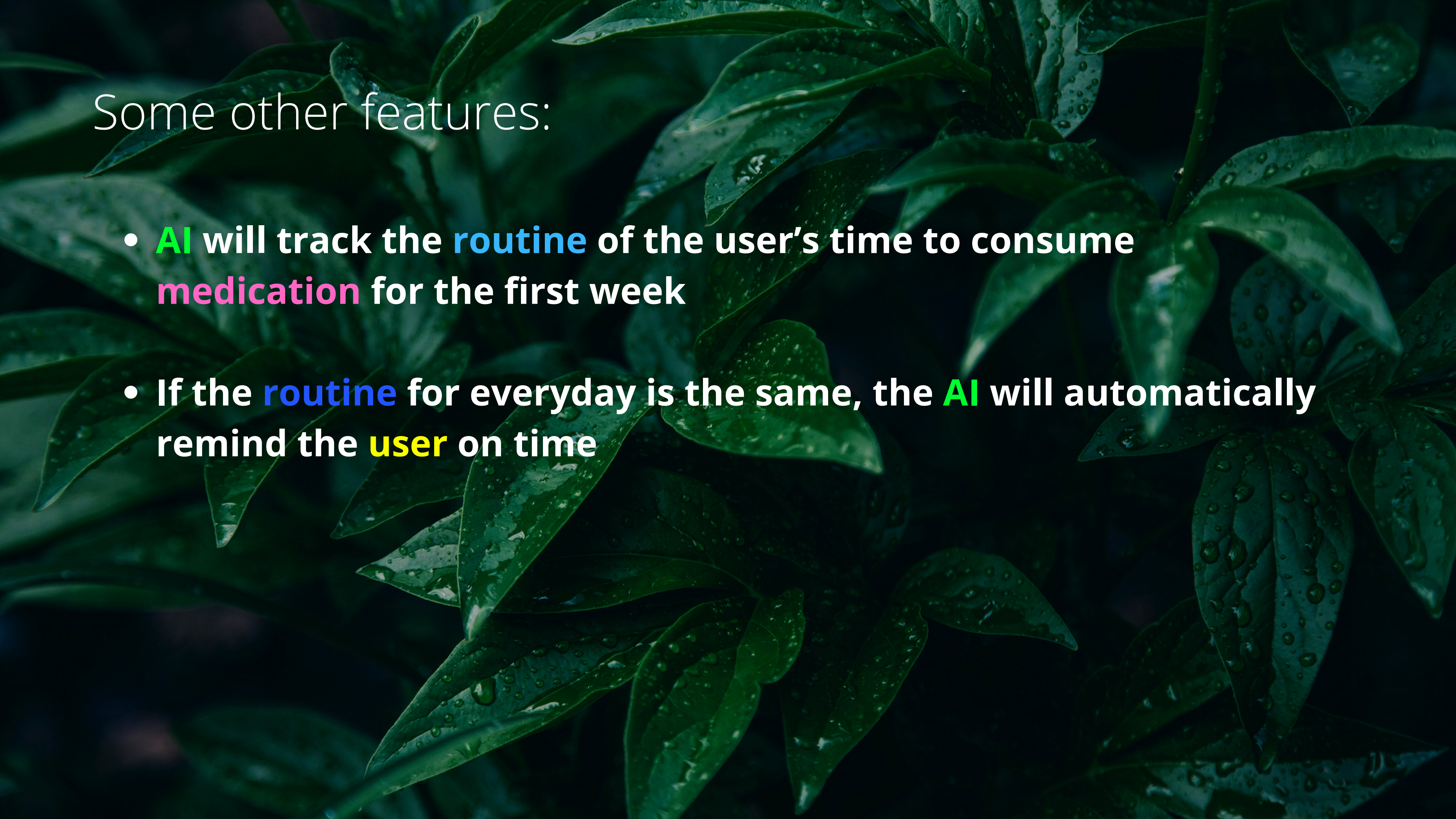


- User has to hold notch and tells when to take medication.
- Wristband will vibrate when it's time to consume medication.
- Hold for 3 seconds to cancel the vibration.

AI CALLING INTERFACE

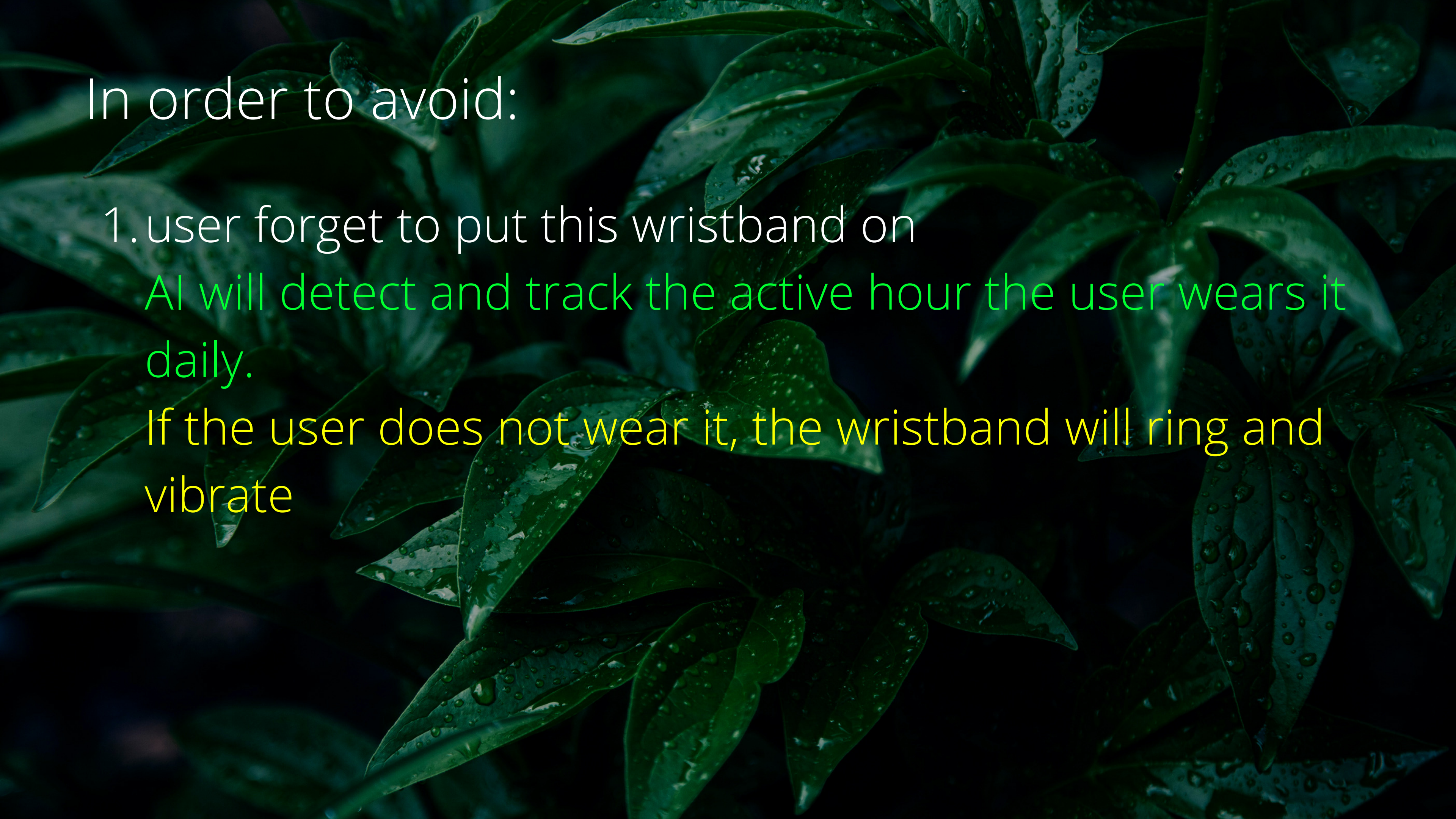


- A contact number will be requested when user using the wristband for the first time.
- The AI will call the contact number if the user has abnormal blood pressure, heartbeat and body temperature.



Some other features:

- **AI** will track the **routine** of the user's time to consume **medication** for the first week
- If the **routine** for everyday is the same, the **AI** will automatically remind the **user** on time



In order to avoid:

1. user forget to put this wristband on

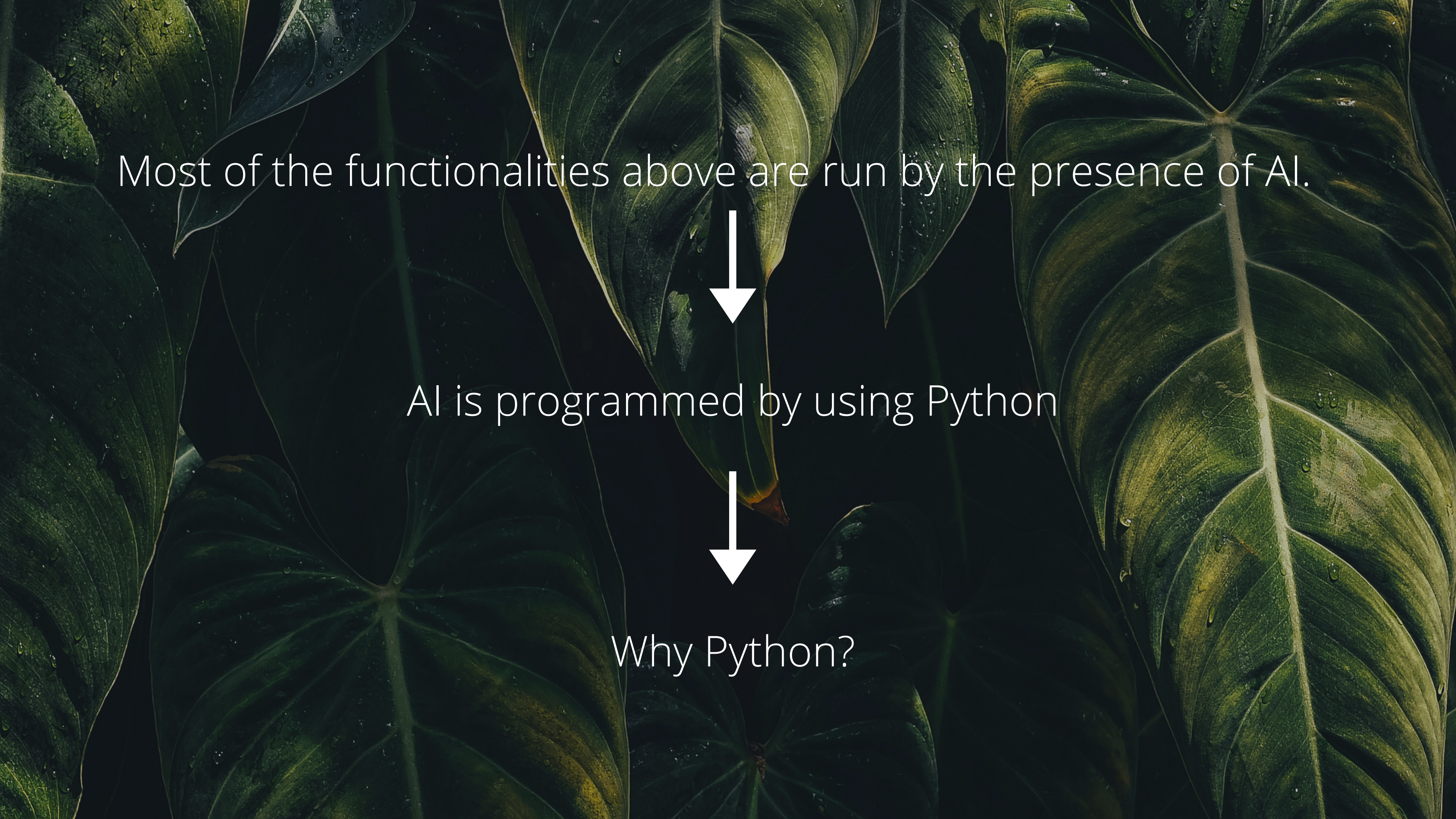
AI will detect and track the active hour the user wears it daily.

If the user does not wear it, the wristband will ring and vibrate

2. user is busy and just dismisses the notification then forgets to take the medication later.

AI will found that the user's blood pressure, heart rate and body temperature is still the same (supposed be normal after taking medication.)

wristband will notify the user again to ask if the user have taken the medication.



Most of the functionalities above are run by the presence of AI.



AI is programmed by using Python



Why Python?

Coding in python is
fast and productive

The availability of third party module

Python has more diverse library compare to others.

TEST



Satisfied