Detection notification device

Inventor : Laksamhee Pansangar, Athiwat Nuiphin, and Teerathat Kamton
Advisor : Ms. Thassaneeya Oy-Aree and Mrs. Wipawee Srihanon
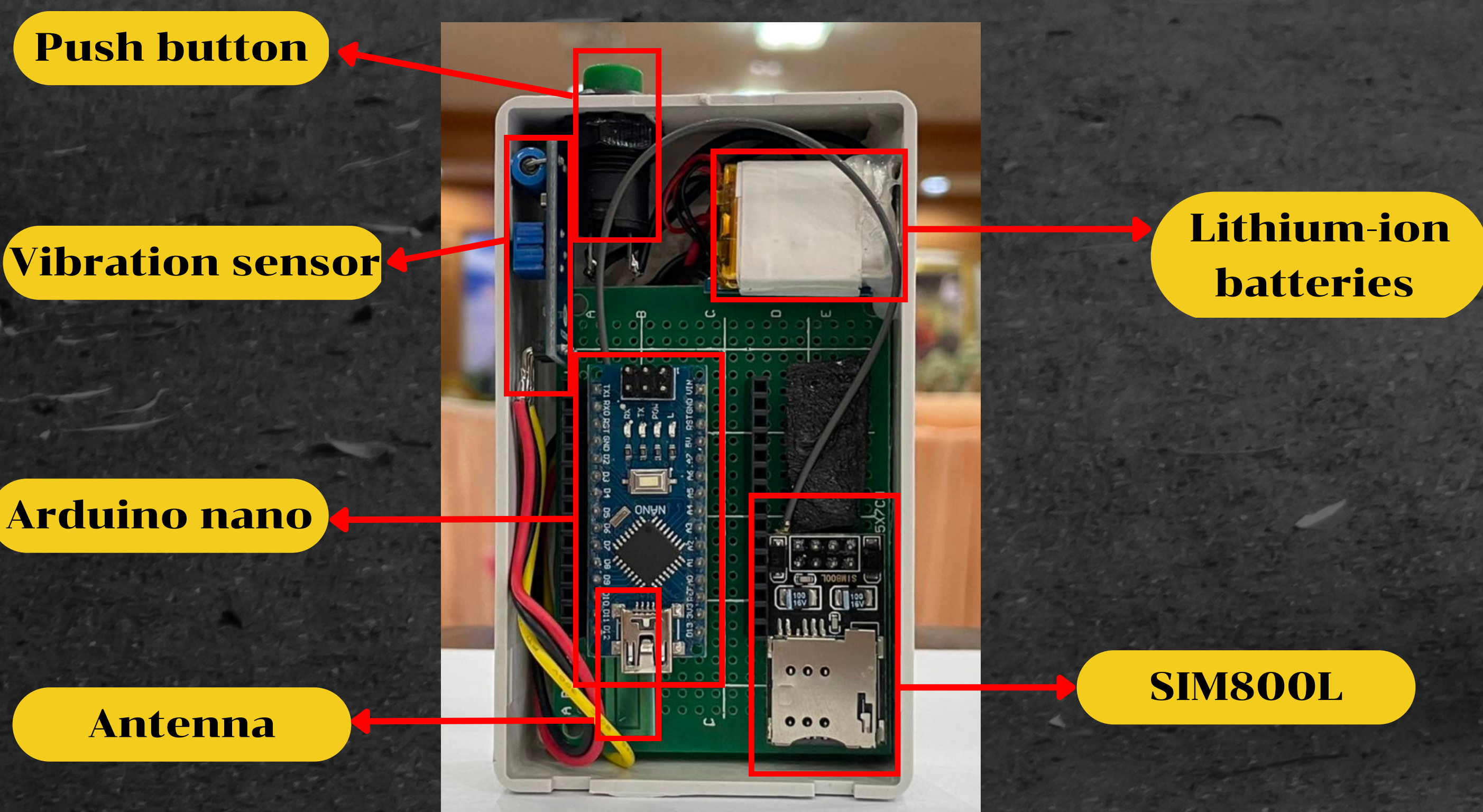Princess Chulabhorn Science High School Lopburi, Thailand

ABSTRACT

The purpose of this project is to make a device that could help solving the problem when the elderly was alone. The principle of operation of device is as follows, the falling was detected by the sensor and the value of the collision while falling will be sent by the sensor to the controller then the controller will evaluate through 3 functions: 1. If the user is not hardly attacked, the device will send 1 message to the user's relatives. 2. If the user is hardly attacked, the device will send messages in every 10 second until the user gets help. 3. If the user is extremely hard attacked, the device will call the user's relatives. And when a user is rescued, press the button twice, a message will be sent to the user's relatives in different format confirming that the patient has been rescued. We've tested the efficiency of the device by seperated into 3 experiments for each level. We found that the device can work 96% in soft level, 95% in hard level and 98% in extremely hard level .
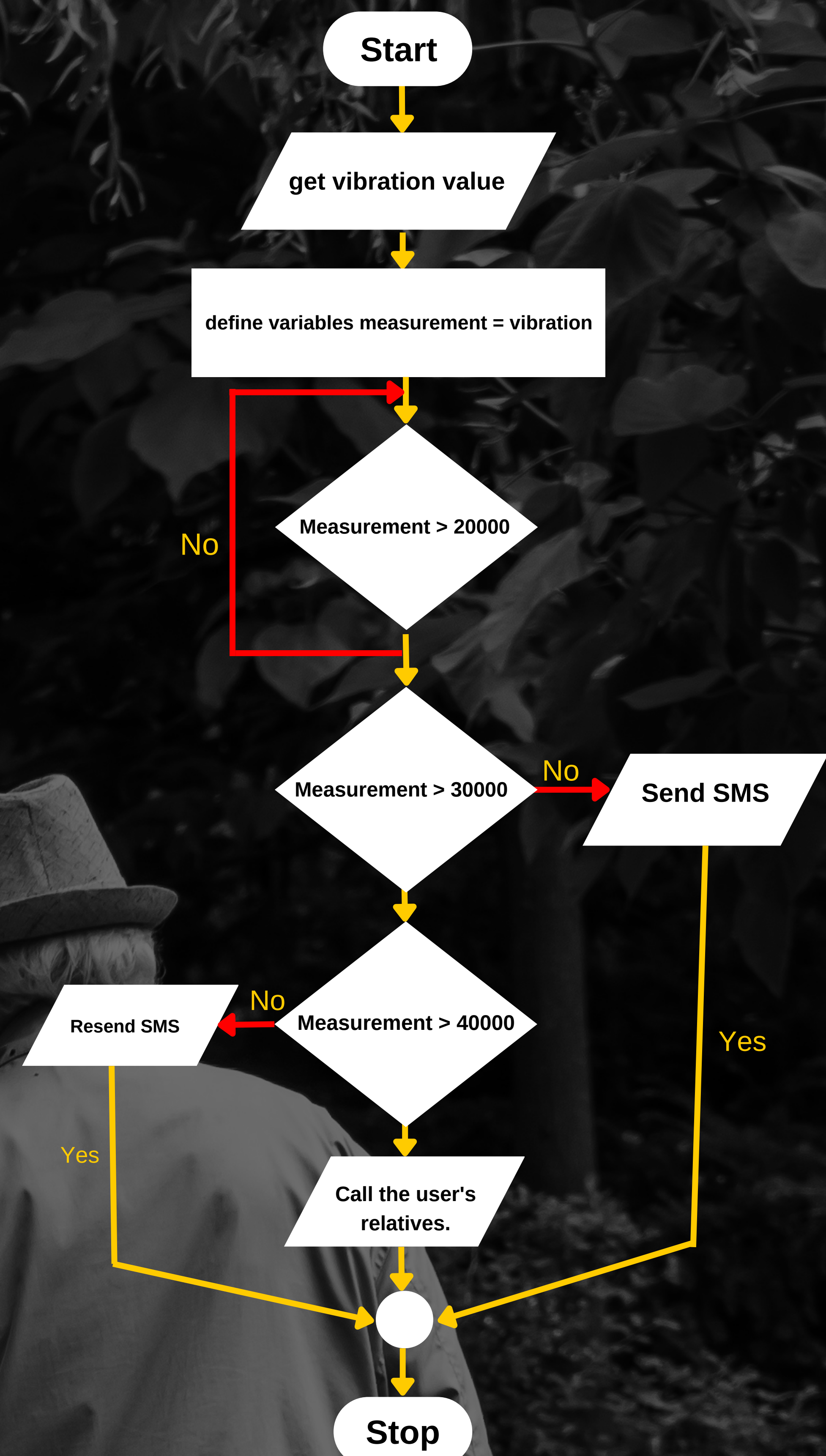
INTRODUCTION

Due to the present society of Thailand which began to enter an aging society make people pay more attention to the elderly, Falls are one of the risks of harm, and it's more common in older people each year, with 1 in 3 elderly people experiencing falling down and half of them slip more than 1 time. When older people fall and break bones, 1 in 5 are unable to walk again and some have to use a wheelchair for the rest of their lives. As a result, the elderly lose the ability to take care of themselves and need to be cared for all the times. We saw this problem and came up with a device that could help solving the problem when the elderly were alone.
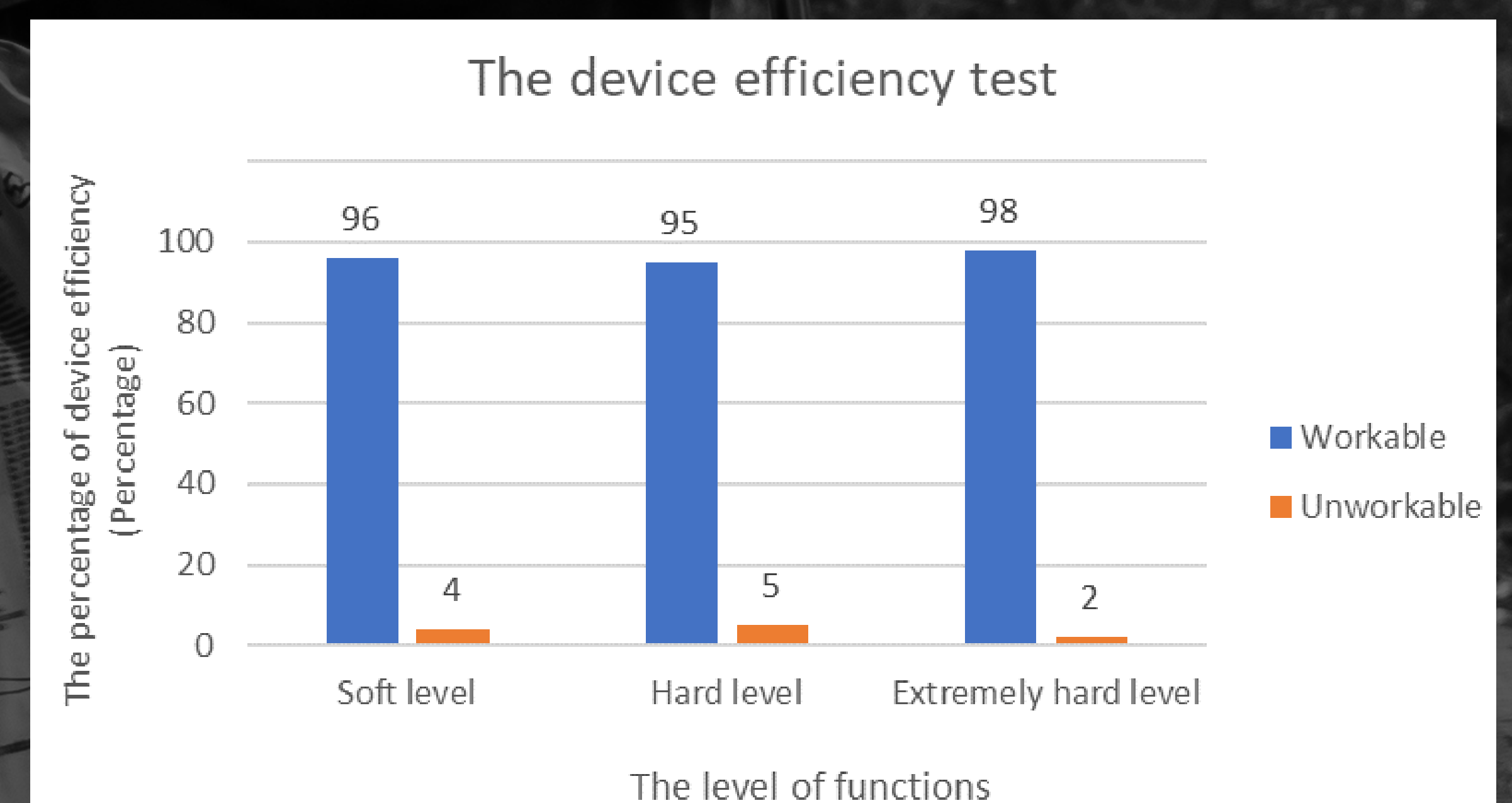
MATERIALS

- Push button
- Vibration sensor
- Lithium-ion batteries
- Arduino nano
- Antenna
- SIM800L

FUNCTION

Start → get vibration value → define variables measurement = vibration → Measurement > 20000 (No) → Measurement > 30000 (No → Send SMS) → Measurement > 40000 (No → Resend SMS) → Yes → Call the user's relatives. → Stop

RESULT

According to the graph, It shows that the device can work 96% in soft level, 95% in hard level and 98% in extremely hard level. The 4 , 5 and 2 percent errors might because the force while falling sometimes are not hard enough due to the tester who afraid to fall hardly.

The device efficiency test

The level of functions	Workable	Unworkable
Soft level	96	4
Hard level	95	5
Extremely hard level	98	2

CONCLUSION

From the result of the experiment, we can conclude that this device has a efficiently active on extremely hard level function as 98%, soft level 96% and 95% hard level which are high percentage of efficiency working.