Messaging by Movements (XJ3-16)

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Project Overview
The use of smartphone is an indispensable aspect in modern society. The most popular application that used in smartphone is instant messaging app which spreads rapidly in recent ages. The mobility of the chatting application allows people to connect each other at any time. However, the form of communication has confined in keyboard texting. This application mainly focuses on creating a shaking method to chat with friends rather than just typing word messages. This could achieve by the cooperation of the smartphone sensors with the application so as to detect and type the required materials.

Objective
- Develop an Android application which provides people a more interesting and convenient way to communicate with friends.
- Using only a thumb to hold at a certain position of the screen, then by shaking the phone few times will generate different text messages. After that just leave the thumb off from the screen while the messages will automatically send out.
- Applying this application, people can send a particular messages using their hand movement without typing anything.

Implementation
The development of the project application is based on Android Environment and using Android Studio to build. To achieve the detecting objective we will use the accelerometer sensor in our application to detect the shake motion. During the hand movement, the accelerometer would detect acceleration data. As the accelerometer can obtain the current orientation of the device by comparing the angle change of three main axis (x, y, z) and the corresponding acceleration with respect to the gravity, hence we can identify the current motion of the device. Thus the application will generate specific message according to number of shakes that are applying to the phone.

Result
The instant message application is created successfully. We have tested the application in varied brands and models of smartphones, and it work perfectly fine. This application has login function, which means different user can login with different name and then chat with each other over internet. In addition, there is a shake button called “Hold me to shake” built inside the chat room at the right corner, which provides users a different typing method while they only need to tap-and-shake then a message will be sent out automatically. When the user is holding the shake button, he can determine the number of shakes so that different messages will show up and send out. If the user has found that he do not want to send that message shown up in the box, he just need to drag his finger upward then the message will be canceled.

Application Work Flows
The development of the project application is based on Android Environment and using Android Studio to build. To achieve the detecting objective we will use the accelerometer sensor in our application to detect the shake motion. During the hand movement, the accelerometer would detect acceleration data. As the accelerometer can obtain the current orientation of the device by comparing the angle change of three main axis (x, y, z) and the corresponding acceleration with respect to the gravity, hence we can identify the current motion of the device. Thus the application will generate specific message according to number of shakes that are applying to the phone.

Logic of using the shake button
Chatroom UI with “Hold me to shake” button