

# Smart Band

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## Problem Statement:

Constantly touching the face with hands can transfer harmful bacteria into our body. The COVID-19 pandemic has shown us that touching our nose or mouth after being in contact with the external environment can sometimes lead to spread of virus in the body. The aim of this band is to alert the user when his hand touches any part of his face. The band will vibrate immediately.

## Ideation and Planning:

- ❑ The band traces a set of movements made by the arm in order to determine whether the arm is moving towards the face or not. The band must not vibrate every time the arm reaches near the face. It must vibrate only when the arm touches the face.
- ❑ The wristband uses an accelerometer to identify its slope. Since it is attached to the user's wrist, the degree of tilt on the 3 axes (X, Y and Z) can be used to indicate whether the user's hand is close to their face or not. If a sequence of angles detected by the wristband matches a hand-to-face movement, it will vibrate. Therefore, the mere fact that it is close to the user's face does not trigger the vibrating motor.
- ❑ At certain times the device may present false positives, i.e., when the wristband vibrates in non-touch movements, or false negatives, when it does not vibrate in touch movements. The user can adjust sensitivity to decrease the amount of false positives or false negatives.



## Improvements for the project:

The smart band can be extended to a device that behaves like a smart watch. Additional features like time, date, weather etc can be added using the raspberry pi microprocessor.