

In the modern world, technology has an increasing impact on society. We use conveniences and different solutions, we use phones to keep in touch with the Internet and social media. Today, every second person has a mobile phone and every third person is an active user of social media. More and more often we see adults, young people and even the youngest children staring at the phone screens. It is estimated that every fourth road accident involving pedestrians in Poland is caused by a mobile phone. In the interest of security, we have created a solution to this problem.

Stop-fon is a very simple system consisting of a mobile phone application and a Beacon module. The task of the whole system is to inform users looking at the screens of phones or listening to music about approaching the pedestrian crossing.

Beacons are devices with a built-in Bluetooth module and an economical battery that connects to the application when the user approaches them to the preset distance and then lock the screen of the phone. Beacons can be located at traffic lights, pillars or elements of small urban infrastructure.

This application, when approaching the crossing, will block the screen displaying a warning message and turn down the music when someone is listening on the headphones (but not to the mute mode, because someone could conduct an important conversation).

The app can be personalized by settings, like turning the phone's vibration on or off while blocking the screen. It is also possible to set a password to block the access to the settings as a kind of parental supervision so that the youngest users cannot change the settings and uninstall the app.

Tests were carried out by us on two groups. They were aimed at checking the effectiveness of our idea, comfort of the usage and the impact on the safety of users. The first of the groups were children aged 11-14. We put Beacons on the nearest, most frequented crossings. The second target group were our friends and adults. We have placed the devices at the crossings they use most often. Thanks to objective feedback, after the tests we were able to improve the system even more as well as remove problems such as the difficulty with the calibration when it started too early or too late. It also allowed us to consider other possible situations and options like the installation and answer the questions.

Currently with the help of the Proton Innowacje company Stop-Fon system was implemented on 5 crossings in the city Żory. Stop-Fon has been appreciated by many environments, in this it was well received by the Police Road Traffic Department in Katowice, as a solution supporting safety at pedestrian crossings.

Application is available for free. Beacon's maintenance is very low, due to the use of Bluetooth 4.0 LE technology, which consumes little energy. Cost for one crossing is around 3000 zloty for a year (with maintenance included in the price).

More information can be found on official page <https://stop-fon.proton.pl/>

App installation guide: https://stop-fon.proton.pl/Pobierz_aplikacje

Link to the video: https://youtu.be/_MQwVfITXyM

We hope that the use of our system will significantly reduce the number of accidents caused by the lack of caution by pedestrians.