



TECH VEST SDN BHD



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SAFETY VEST

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1. EXECUTIVE SUMMARY

Law enforcement officers are empowered with the awesome responsibility and authority to maintain public order. At the same time, officers have the unique opportunity to engage with citizens, identify and solve problems, and positively affect their communities on a daily basis. The result is a dynamic profession that blends tactical response, critical thinking, and interpersonal skill. Law enforcement agencies respond to tens of thousands of calls for service each year. Each day presents new challenges that require application of these varied skills in new and different situations.

The goal of this project is to develop and study a device that can detect pressure and send the data over a wireless transmission. Wireless hands-free technology is rapidly adapting to a variety of technology today. The purpose of this project was to take the "Officer Down" protocol and simplify it into a device that handles the procedure without user input. The solution was a body vest that is worn under the current equipment and detects harmful attacks. It then reports these attacks back to the station. Currently, the police use a button attached to the belt to alert the dispatcher if there is a problem. However there may be situations in which the officer becomes incapacitated or unable to alert the proper channels. It is possible to design sensors and equipment that will make the users that much safer.

Various materials needed to be researched to determine which would be best suited for the device. The goal is to build a device that would detect an impact inflicted onto the vest which would then transmit the signal to an on board computer, and further sends that information to the dispatcher. Once the dispatcher takes hold of the signal, they can use proper protocol to ensure the safety of the officer. One of the major pieces of the device is the sensor. It is designed to be flexible and detect certain impacts. The sensor monitors a variable capacitance, and once the threshold is reached, the signal is sent over to the transmitter. The transmitter needs to be low power and mobile as the officer needs to be able to walk where he needs to and not worry about being attached to the car. A proper receiver would then be determined signals that may interfere. This project details how the blocks mentioned come together to meet the device requirements. In the end we were able to successfully construct the device, though we had some issues.



2. PRODUCT OR SERVICE DESCRIPTION

Safety Vests have become a staple of the security and defense industries. Modern police officers, infantry soldiers, and security guards feel safer in the knowledge that their vital areas are better protected from enemy gunfire. Obviously, no article of clothing can provide absolute ballistic protection, but the advantage of modern body armor is significant, and since the 1970s they have saved the lives of thousands of law enforcement officers. As technology has improved over the decades, these vests have become stronger, thinner, and better able to stop bullets, and this trend will continue for the foreseeable future.

However, there is a downside to this helpful technology. When a ballistic vest stops a bullet, the force of the impact is still enough to cause significant blunt trauma. While the wearer's life will likely be saved, he may be temporarily incapacitated by these injuries. The result is a hurt individual in a dangerous situation who may very well be unable to call for assistance on his radio. This system would potentially save lives in situations where a law enforcement officer is alone and is unable to call for backup either due to injuries or to active engagement with an attacker.

After doing some research, the team chosen a product that can benefit to all enforcement officers in Ministry of Health at each district. The main problem for enforcement is their safety on field work.

2.1 Purpose of development

The main purpose of developing this product is to safety for all enforcement in district. Users can only press the button while in unsafe conditions.

2.2 Product concept

- Enhance safety of enforcer
- User friendly
- Using high technology to make a faster respond by another team enforcement.

2.3 Application

- Press button is used to communicate with other team.
- Battery is for power supply for every electric component in jacket.



2.4 Unique features

- Electronic main board-program will upload to the board in order to make all the component function well.
- Use high quality of camera.

The key components identified from the high-priority research needs as being of greatest interest and potential utility to law enforcement fall into six categories:

Component	Basic	Enhanced	Advanced
BWC and microphone	Off-the-shelf components	Off-the-shelf components	Advanced camera and microphone system
Power source	Flexible lithium-ion (Li-ion) batteries	Flexible Li-ion batteries	Flexible batteries with energy harvesting
Wireless charging	Off-the-shelf components	Off-the-shelf components	Integration into garment
Data and connectivity	Existing systems	Mesh network	Mesh network with processing capability connectivity
Sensors	None	Biometric and injury-monitoring devices	External environment with analytics and processing