Wearable Biosensors for Firefighters: WASP
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Abstract - There are many companies trying to design and commercialize the next big biosensor. Well Globe Manufacturing Co. has designed WASP (Wearable Advanced Sensor Platform) which is a shirt based biosensor for firefighters. That monitors a firefighter’s health and provides other modern technological advances in the field.

I. INTRODUCTION

In the year of 2012 fifty percent of on duty firefighter fatalities were caused by heart attacks. Now a days there is no equipment that can predict the exact time of a person’s heart attack. Though there is equipment that can be used to monitor abnormalities in a person’s vitals that might suggest possible heart problems. The WASP can monitor a firefighter’s vitals before during and after they go running into a burning building. Wearable sensors are being used in other fields such as rehabilitation. The purpose is very similar though to collect and observe data. They use their data to prevent medical issues for patients.

II. METHODS

The WASP system is composed of a shirt, strap, GPS device and Zephyr Bioharness™. The shirt is made out of stretchable moisture wicking material and has fire resistant capabilities. The strap is made into the shirt with biosensors attached to it so that physiological traits can be measured. The GPS device is made to be worn on a belt at the waist and provides three dimensional location even in non GPS locations. The Zephyr Bioharness™ this small three electron module attaches on the exterior of the shirt the harness and communicates with the biosensors on the harness to record heart rate, variables in the heart rate, respiration rate, activity levels, posture and other physiological traits of the firefighter.

The data that is collected by the WASP both physiological and location is then relayed to a computer that analyzes the data to monitor firefighters health. The data is transmitted via Bluetooth, Android smartphones or Motorola APX radios.

III. RESULTS

The WASP already shows a lot of potential it has passed the prototype phase and has begun the showcase process before it enters the market and is mass produced. Anyone could wear a WASP and it would be able to do all of the features mentioned in the methods section. It could follow ones location and track physiological traits.

IV. DISCUSSION

Now you may be asking yourself what will be the financial burden of just one WASP? According to Mark Mordecai director of business development at Globe when the WASP initially hits the market it may run $25,000 per unit. He did address that as time goes on and the WASP becomes more standard the price will decrease to $3,000 per unit. The WASP has a lot of potential to be used by other first responders and even military men. Disadvantages are the price and the fact that the straps and devices may cause maneuverability problems for those who are not accustomed to wearing it. The WASP has the potential to save a lot of lives of first responders everywhere once it is on the market.

REFERENCES