

Intelligent Head Immobilizer

An embedded head immobilizer for maintaining a patient conscious by automatic communication.

1. What is the problem defined?

By analyzing furniture that already exist and that help people in situations where they need help, there are several different options of new smart furniture. Among all diseases and injuries, designing something connected to accidents is not that frequent. Typically, when serious car accidents happen there is a lot of damage to people. One of the most frequent symptoms presented by people (beyond the psychological trauma) is unconsciousness. When a person is unconscious, she is unable to respond to any stimulus, appears to be asleep and do not respond to loud sounds or shaking, so it's necessary to have the right assistance during the rescue.

2. What is the dilemma you find?

Sometimes before a person become complete unconscious, she is still have the ability to hear and respond to what is asked by the paramedics, and thinking about these specific cases and this specific person that I discovered a dilemma. Although rugged and unconscious people usually do not talk much after an accident, it is necessary to make some questions even to analyze the symptoms and signs that people transmit. Of course this is not always possible, but if the injured person has conditions to speak and answer it, it is better for her and for the paramedics help her.

3. Which type of unconsciousness the head immobilizer will help?

One truth about unconsciousness is that are a lot of different types caused by different types of symptoms. Most of them are related to the head and heart and thinking about all the different types, one that is more propitious to happens during the car is syncope.

4. What is Syncope?

Syncope is one type of unconsciousness and it is understood as a temporary loss of consciousness, posture and it's usually related to temporary insufficient blood flow to the brain. This specific type of syncope happens when the heart doesn't pump a normal supply of oxygen to the brain.

5. What causes Syncope?

Usually some injuries, symptoms or even diseases, can cause syncope and among these various forms, there are some that can be related to car accidents, such as: alcohol on the empty stomach, low blood pressure, bradycardia (slow heart rate), tachycardia (faster than normal heart rate), panic attack and high fever.

6. How does happens the loss of consciousness?

When people lose consciousness, they faint and this is the response of the body from all the symptoms that I said before. In this state of unconsciousness, what happens to the person is that she stays motionless and pale, don't react to noises or painful stimuli.

7. How long does a person can be unconsciousness without paramedics being concerned?

This state of unconsciousness has a time where people stays motionless without the paramedics being concerned, this time last around less than a minute. When a person has a longer duration than that time, it stop to be just a loss of consciousness and begins to be coma.

8. What is your idea?

So thinking about unconsciousness in people after car accidents and in the fact that car accidents are frequently happening in highways and roads, the idea of develop a furniture that could be useful and helpful on the rescue of these people, emerged. The furniture created isa head immobilizer. The idea is develop an intelligent embedded head immobilizer with mini speakers that can communicate with the injured person to help her during the rescue. A head immobilizer, normally used in rescue in ambulances, is easily to be transported and is detachable so it can be placed in the ambulance after the rescue.

9. How my device will assist people?

With a speaker installed inside the head immobilizer in a part next to where the head of the person who will be lying down will be, the speaker will communicate with them to try to make her conscious while the paramedics do the other part of the rescue. That's how this device will assist people, buy trying to get some information from them while the incident or that act is still very fresh in his memory and while they can say what they are feeling.

10. Does my furniture will be used a lot by people?

In 2011, the Florida Department of Highway Safety and Motor Vehicles register about 117,000 injury crashes only in Florida. Whereas this number of injured people is high, I believe this device will be used with frequency in the rescue of people. Also, it's necessary to calm down patients when they are with a disorder of post-traumatic stress. The paramedics could have an extra help with the speakers, who could make their work easier.