LITERATURE SURVEY AND COMPETITION REPORT

GROUP – 8

Company Name: I – CEE

Product Name: VIBRO – I

Group Members:

İlker Danyal Kanatlı

Oğuzhan Aras Bulut

Esra Dokuzoğlu

Berk Korkut

Ekin Kartal

Ceren Hasançebi

1-Literature About The Methods of Achieving The Product:

The aim of our project is to make visually handicapping people feel the environment around them by help of vibration. The VIBRO-I is a fully portable solution consists of several sensors on a portable belt and several vibratory devices on a wristband.

The VIBRO-I integrates 4 sensors which cover the full sight of the users, and 4 vibratory devices which are designed as wristbands and a belt which holds the sensors around the waist band and help them work properly. 4 sensors are placed on the belt with suitable angles that covers the 360 degree of the user. Sensors are going to work simultaneously which means they will receive inputs from environment and send them to the wristbands simultaneously.

The advantage of this working principle, user can determine the place of the objects with high success rate. It will be clarified in the working principle part of the vibratory devices. The sensors have a short range of 3 - 4 meters which is enough to help the user to determine the objects which can appear as a handicap for user. The distance between the objects and the user determines the power of the vibrations on the vibratory devices. While the distance between the user and objects is decreasing, force of vibration increases with opposite proportion. This property helps user to determine the distance of a handicap.

Moreover, user has a chance to determine the place of the objects in the environment. Sensors, which work simultaneously, send outputs to vibratory devices.

Vibratory devices have a property that they can vibrate in different levels. The outputs from the sensors will cause the different level of vibrations on wristbands and this level changes help the user to determine how distance he/she is away from the objects.

The VIBRO-I is designed to produce zero vibration for distances which do not cover the recognition area of the sensors and to produce full vibration if the user is so close to the objects which can be accounted as a handicap for user's mobility.

The belt is going to designed as portable and stylish. It will be thin and light in weight for easy usage and high mobility. The sensors and the connection devices between sensors and the wristbands are hidden in the belt therefore it will look like an ordinary belt from outside view and this will make it more stylish.

2- Possible Applications of Our Product

Data transmission from waist belt to wristband would be accomplished by wireless communication technologies instead of cable transmission.

Sensors would be exchanged with a camera system for input perception. It is known that with today's technologies, cameras are able to recognize up to approximately 75 different objects. So, with future technologies, this number can probably increase.

For above applications, wristband remains the same except that wristband is made to recognize the new technologies like wireless and camera.

Instead of the wristband, in order to notify the user about the objects encountered, a microchip can be used to convert camera inputs to voice outputs which can be transmitted to the user via headphones.

3- Existing Competition In The World:

According to our research about existing competition in the world about blinds, the most famous and common product is GPS Trekker. It integrates off-the-shelf hardware for GPS input with voice output to provide instructions and optional voice input for entering notes. However, the real advantages of Trekker are its software features and adaptation to meet the needs of the visually impaired.

The objective of Trekker is to guide people who are visually impaired in their environment. Trekker is a scalable solution that will grow to accommodate new hardware computing platforms, more detailed geographic information and special applications such as trekking. Trekker provides more independence to people who are visually impaired and can

increase confidence in their ability to travel. It will also increase their accessibility and enjoyment of the most useful and interesting opportunities found in their environment.

Main features of Trekker are voice-information control features, user-defined location marks, route planning and recording, access to GPS status information, flexibility in information presentation and guidance to allow for various levels of users (beginner, normal, advanced) and familiarity with a given environment. [1]

4- Possible Competition That Might Come Around At The Expected Time of Your Production:

Through the expected completion time of our production, we would consider that some competitors may upgrade the usage of GPS. They may use more details in their routing system such as including more detailed maps. Also, they may start to use cameras in order to define the nearby objects. With this, visually handicapping person can know the route by GPS and also minimize the environmental factors' threats including cars, walls and etc. We think that usage of cameras will stop using canes which affect blind psychology negatively.

5- Competition From Similar Products In The Market:

As we pointed out before, there is one important competitor we could find in the market which may be a possible opponent to our product. This competitor is Trekker and uses GPS in order to find route. The difference between our product and Trekker's is that we provide visually impaired people to walk with minimum risk whereas Trekker is used to find location. Advantages are quite different; if a visually handicapping person wants to find his route, Trekker is very practical whereas our product prevents usage of cane that affects him psychologically negatively. If we modify our product such that it will work in harmony with GPS for the abroad sales, our company can become powerful against Trekker easily in foreign market and this can bring a bigger market share to our company.

6- Prices For Similar Products:

We will be able to know the overall cost only after we produced the whole product. In order to have a complete product with full features, we will go through many production steps. Throughout the production process, there will be many factors which may affect the total cost but in this stage we will just consider the material costs. We obtained approximate costs for materials after we made a comprehensive market survey. Below are our findings:

- Sensors: total $400 (4 pieces)
- Vibration devices: total $90 (6 pieces) [2*]
- Belt: $20
- Cables: $10
- Programming Language CD: $80 [3*]
- Totally ~ $600 (approximately)

Price of the similar product: Price of Trekker is $1,695 and additionally Trekker Regional Map is $55 and State Map is $250. (These maps can be purchased on-line and downloaded, or ordered and delivered on CD or Flash cards, a city or a region at a time.)[4*]

7- References:

1. (http://www.nanopac.com/products.htm)
2. (www.gittigidiyor.com)
3. (www.ebay.com)
4. (http://store.nanopac.com/index.asp)