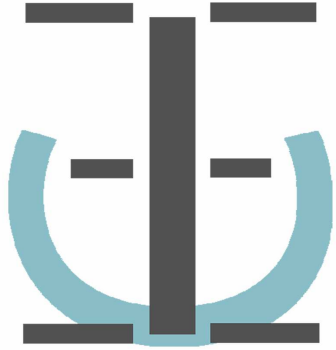
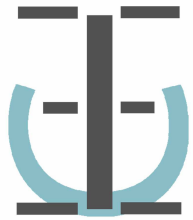




I-CEE INC.

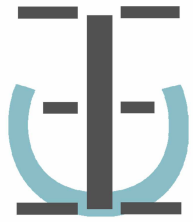
İlker D. Kanatlı
Oğuzhan A. Bulut
Ekin Kartal
Esra Dokuzoğlu
Berk Korkut
Ceren Hasançebi



EXECUTIVE SUMMARY

Company:

- Founded in September 2007 with issued capital of \$131,000.00
 - Founders of the company:
 - ❑ İlker D. Kanatlı (CEO & VP of Production Dept.)
 - ❑ Oğuzhan A. Bulut (CFO & VP of Production Planning Dept.)
 - ❑ Esra Dokuzoğlu (COO & VP of Quality & Assurances Dept.)
 - ❑ Berk Korkut (VP of R&D Dept.)
 - ❑ Ekin Kartal (VP of Finance& Accounting Dept.)
 - ❑ Ceren Hasançebi (VP of Design Dept.)
-



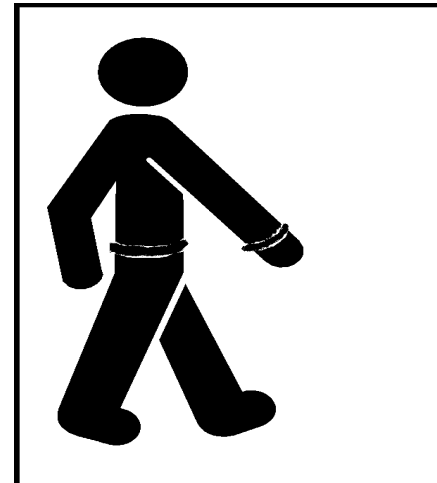
EXECUTIVE SUMMARY

Product:

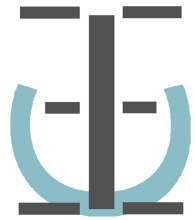
- VIBRO-I aims to rehabilitate the psychology of the visually impaired by eliminating the need for the cane.
- Instead, VIBRO-I only provides an inner belt (worn under clothes) and wrist bands which are the only visible component of the product.



Before VIBRO-I



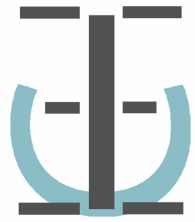
With VIBRO-I



EXECUTIVE SUMMARY

Product:

- VIBRO-I enables visually impaired to view the world as if they do not have a vision defect by vanishing the cane!
 - VIBRO-I consists of two wrist bands which both have vibrator devices on them and a waist belt.
 - Vibrator devices on one band denotes all directions according to signals received from the image processing device (a micro camera) fixed on the belt.
 - Devices on the other band vibrate according to signals received from sensors (fixed on the belt) when obstacles encountered which are undetected by camera.
-

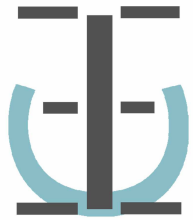


EXECUTIVE SUMMARY

Product:

VIBRO-I :

- is fantastic for providing earlier warning of obstacles than the cane can provide,
 - waist-level objects are much more visible with VIBRO-I,
 - gives object recognition,
 - gives object distance,
 - gives object direction,
 - gives independence,
 - makes a difference!
-



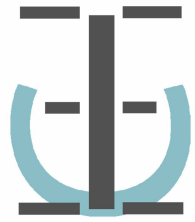
EXECUTIVE SUMMARY

Vision:

- I-CEE primarily aims to help the blind to move about independently,
- I-CEE values human psychology: VIBRO-I is specially designed to provide a new vision experience without the cane for the blind.

Mission:

- I-CEE aims to maximize the customer satisfaction by providing high quality and low prices,
 - aims to fulfil responsibilities to humanity and environment.
-



EXECUTIVE SUMMARY

Company Values:

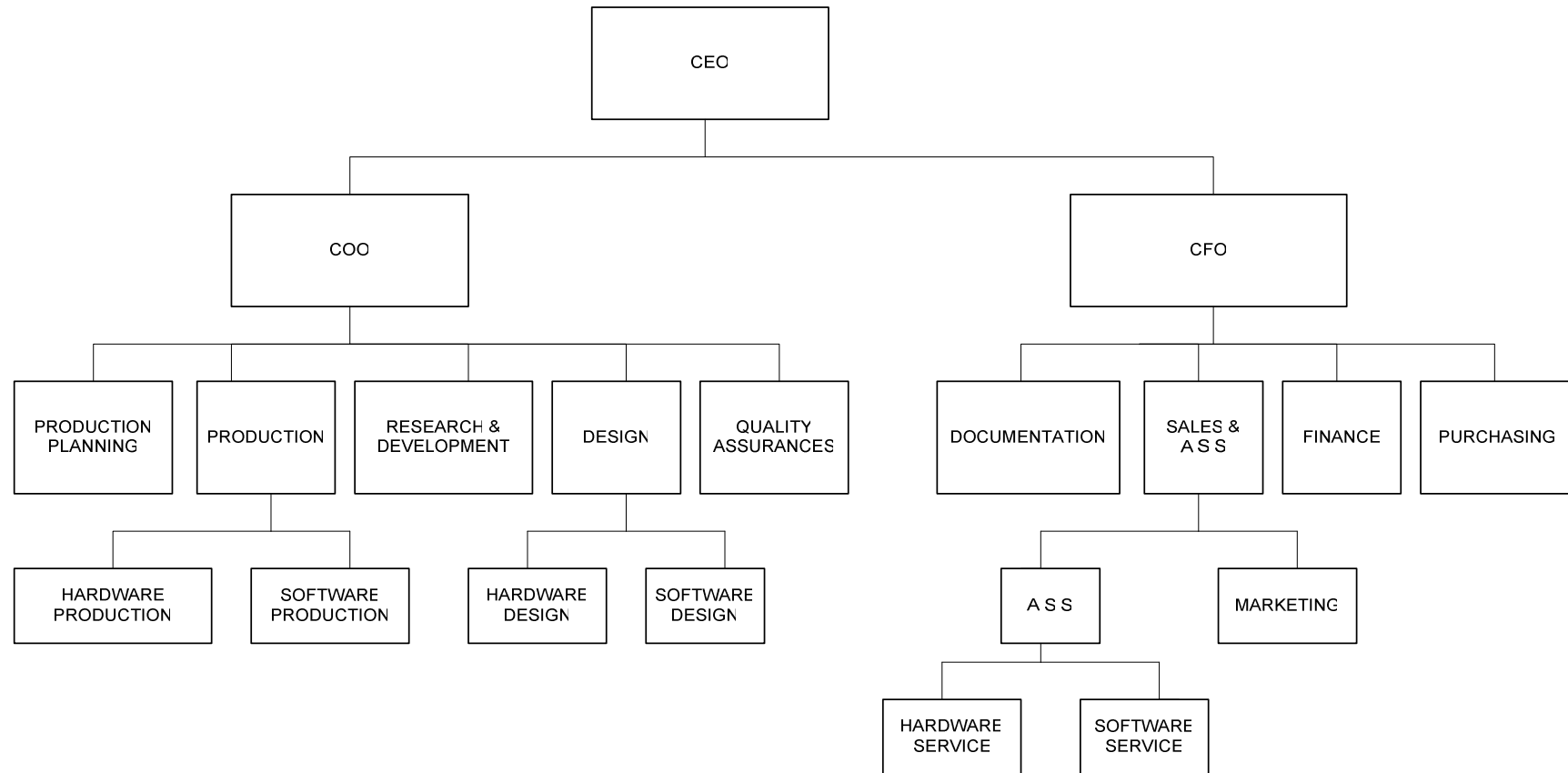
I-CEE:

- cares for customer rights,
 - highly values public trust and customer feedback,
 - is open to new ideas throughout the development,
 - operates within strict legal and ethical rules,
 - relies on human resources,
 - provides a democratic arena where employees share ideas,
 - improves teamwork within the organization.
-



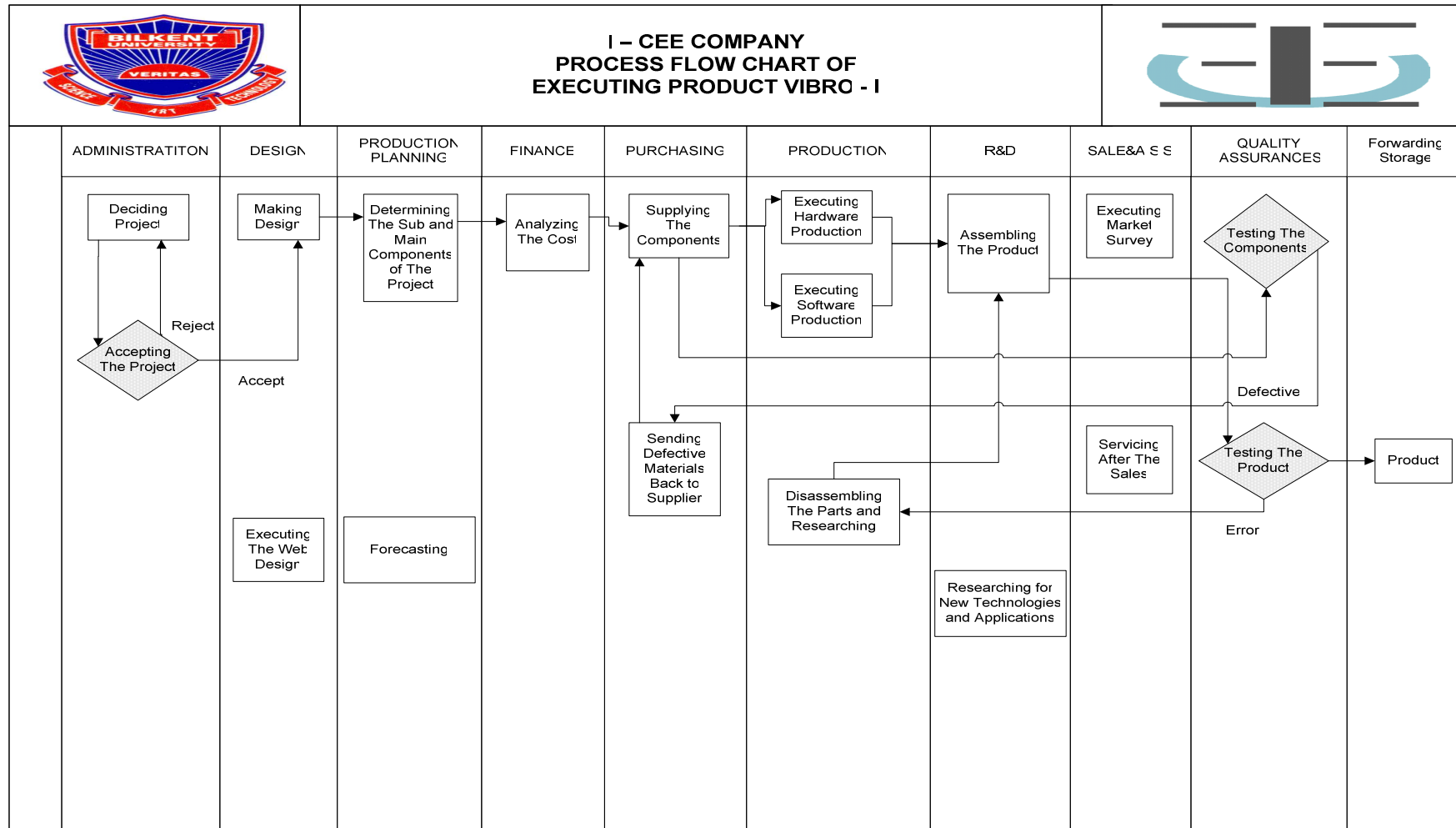
ORGANIZATION OF THE COMPANY

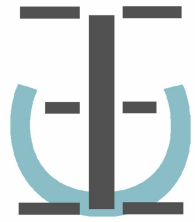
I – CEE ORGANIZATION CHART





ORGANIZATION OF THE COMPANY





PRODUCT DESCRIPTION

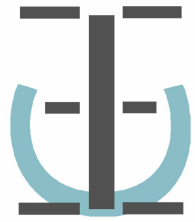
Hardware of the System:

■ Process of Camera:

- ❑ will be used for identifying the surrounding objects using object detection,
- ❑ will capture the frames and send them to the processor board.

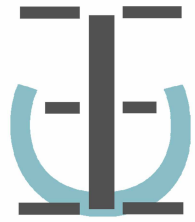
■ Process of Sensor:

- ❑ will detect objects in a specific range, which are undetectable by the image processing capability of the camera,
 - ❑ will inform the user from the distances of the objects by sending denser signals to vibrator devices when closer to the object.
-



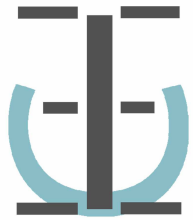
PRODUCT DESCRIPTION

- Process of Processor Board:
 - ❑ a Linux board in order to process the image data received from the camera,
 - ❑ image processing code will be saved on SD card that can be plugged into the Linux board,
 - ❑ processed information on the board will be sent to correct vibration device.
-



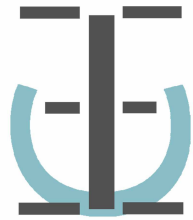
PRODUCT DESCRIPTION

- Process of Vibration Device:
 - Left-Hand Wrist-Band:
 - 3 vibration devices will be located:
 - One at the front
 - One at the right
 - One at the left
 - Each vibration device will vibrate according to the direction of the obstacle.
-



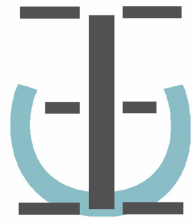
PRODUCT DESCRIPTION

- Process of Vibration Device:
 - Right-Hand Wrist-Band:
 - 4 vibration devices will be located:
 - One at the front
 - One at the back
 - One at the left
 - One at the right
 - Each vibration device will be objected to vibrate for each pre-defined different object.
 - Those pre-defined objects planned to be implemented in object detection software are: door, human body, stairs and car. (in future development more to be defined)



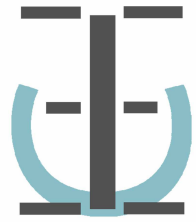
PRODUCT DESCRIPTION

- Process of Vibration Device:
 - Left-Hand Wrist-Band:
 - 3 vibration devices will be located:
 - One at the front
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 - Each vibration device will vibrate according to the direction of the obstacle.
-



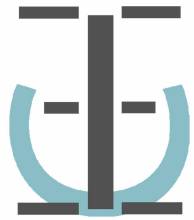
PRODUCT DESCRIPTION

System Subcomponents Specifications



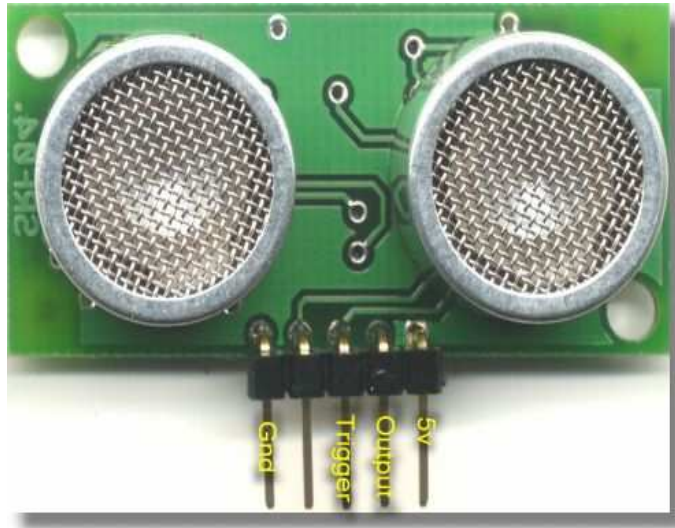
PRODUCT DESCRIPTION

- Why do we choose TS-7200 ARM Single ?

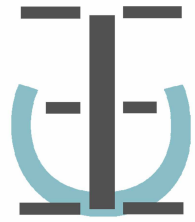


PRODUCT DESCRIPTION

■ Sensor: SRF04 Interface

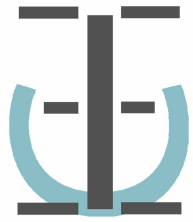


Beam Pattern	<u>see graph</u>
Voltage	5v
Current	30mA Typ. 50mA Max
Frequency	40KHz
Maximum Range	3 m
Minimum Range	3 cm
Sensitivity	Detect a 3cm diameter stick at > 2 m
Input Trigger	10uS Min. TTL level pulse
Echo Pulse	Positive TTL level signal, width proportional to range.
Weight	0.4 oz.
Size	1.75" w x 0.625" h x 0.5" d



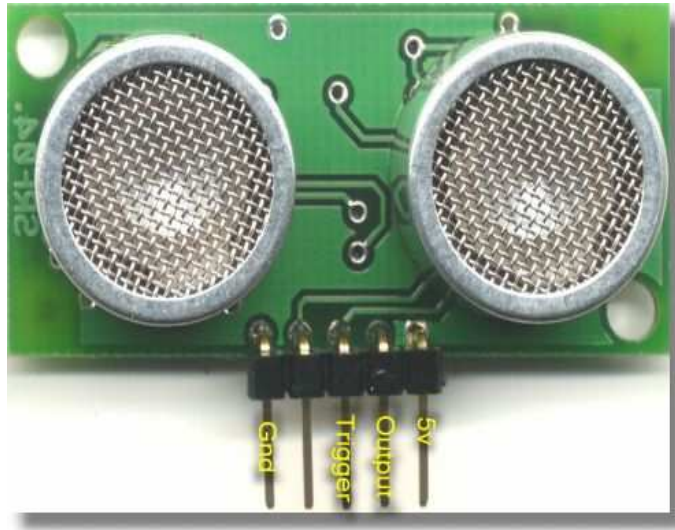
PRODUCT DESCRIPTION

- Why do we choose SRF04 sensors?

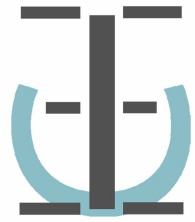


PRODUCT DESCRIPTION

■ Sensor: SRF04 Interface

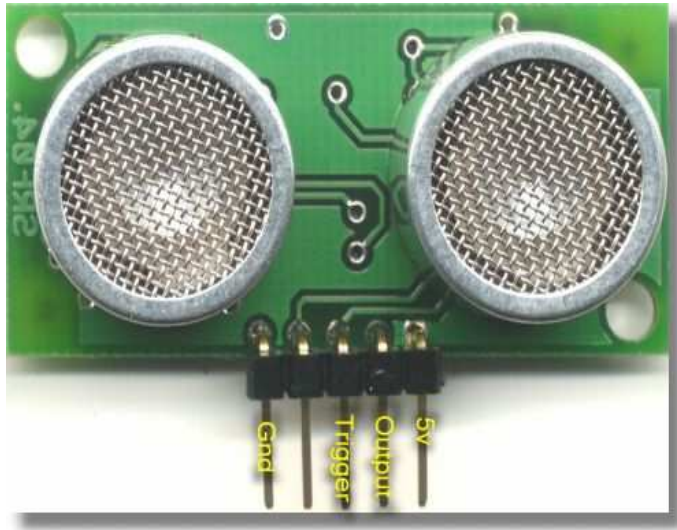


- You supply a pulse from low to high and back low again on the trigger lead to start the SRF04.
 - This sends out a pulse.
 - The SRF04 will then pause for a few ms then deliver a pulse on the output line.
 - To read the range we measure the length of this pulse.
 - We will use the pulseout command to trigger the sensor and the pulsein command to read the echo time.
-

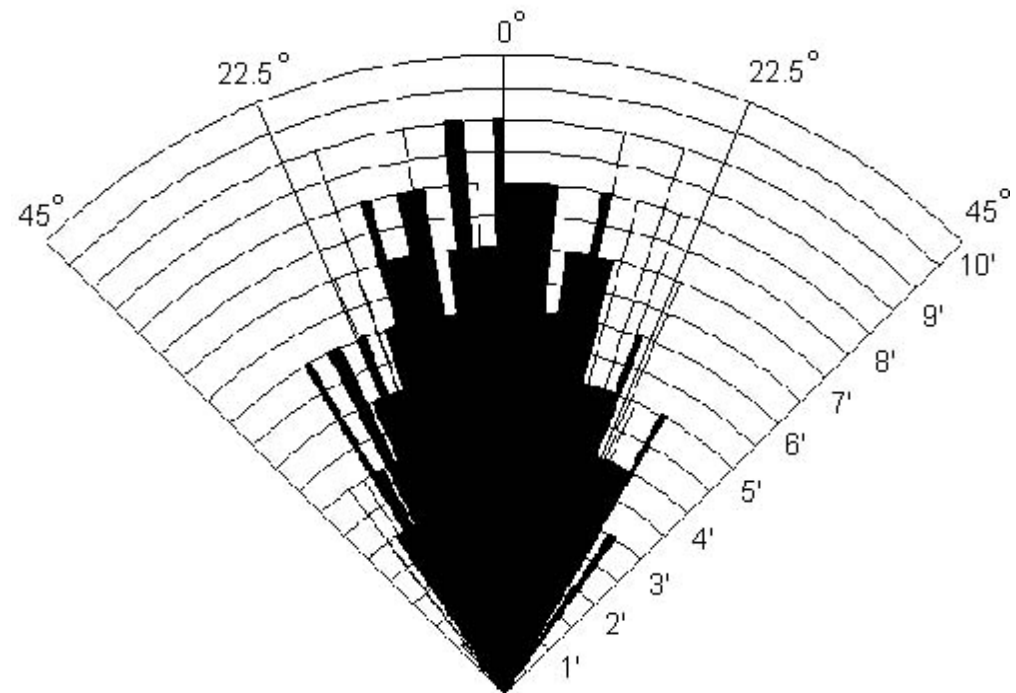


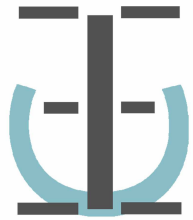
PRODUCT DESCRIPTION

- Sensor: SRF04 Interface



- Graph:



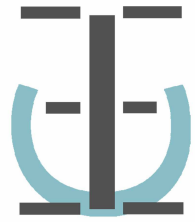


PRODUCT DESCRIPTION

- Vibration Motor: Micro Pager Motor G12809

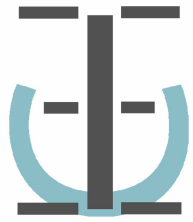


- Its size is only 4mm (.16") Dia.x 12.5mm (.49") long (excluding shaft and weight).
 - Has 2 tiny terminals for hookup and is mounted in a slip-off rubber shock sleeve.
 - Operates from 1VDC up to 5VDC.
 - Motor resistance is about 11W.
 - Great for thousands of micro projects, robots, etc.
-



PRODUCT DESCRIPTION

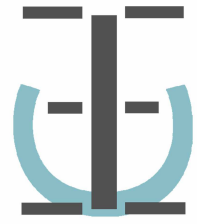
- Why do we choose Micro Pager Motor G12809?
-



PRODUCT DESCRIPTION

Software of The System

- Image processing needed for detecting objects will be implemented either with C++ or with Matlab (not decided yet)
 - Linux board, which will include the necessary electronic circuitry and microprocessor, will be coded with embedded C
-



MARKET AND COMPETITIVE ANALYSIS

Industry Classification:

- Medical Electronics
- Advertisements:
 - 6 Nokta Körler Derneği
 - Ophthalmology Association
 - Health magazines

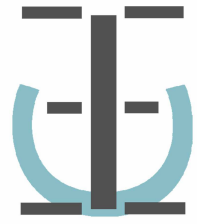




MARKET AND COMPETITIVE ANALYSIS

Product Classification:

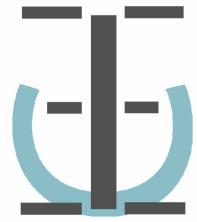
- Low cost
 - Low price
 - High technology
-



MARKET AND COMPETITIVE ANALYSIS

Market Segmentation:

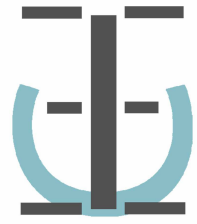
- 412,312 visually impaired
 - 80,813 including retired, have income, expected to work
 - 241,738 registered to Social Security Foundation ^[1]
-



MARKET AND COMPETITIVE ANALYSIS

Sector Partners:

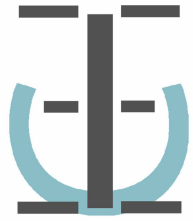
- Competitors
 - GPS Trekker:
 - voice information control according to defined location marks in GPS navigation
 - access to GPS status information
 - route planning and recording [2]



MARKET AND COMPETITIVE ANALYSIS

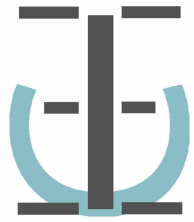
Sector Partners:

- Industry Participants
 - ❑ Medical Shops
 - ❑ Hypermarkets
 - ❑ Drug stores
-



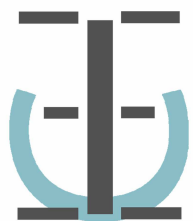
BUSINESS STRATEGY

- Product Strategies
- Price Strategies
- Distribution Strategies
- Promotion Strategies
- Financial Strategies
- Administration Strategies
- Software Strategies
- Production Strategies



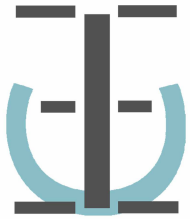
SALES FORECAST

- %16.9 retired
- %2.5 have regular income
- %0.2 expected to work
- %63.7 registered to Social Security System
- with above items: totally %19.6 of visually impaired - our range (approximately equal to 80000 per year)
- population increase = ~ %2.26 per year
- 2 years after first market sales, agreement with Social Security Foundation



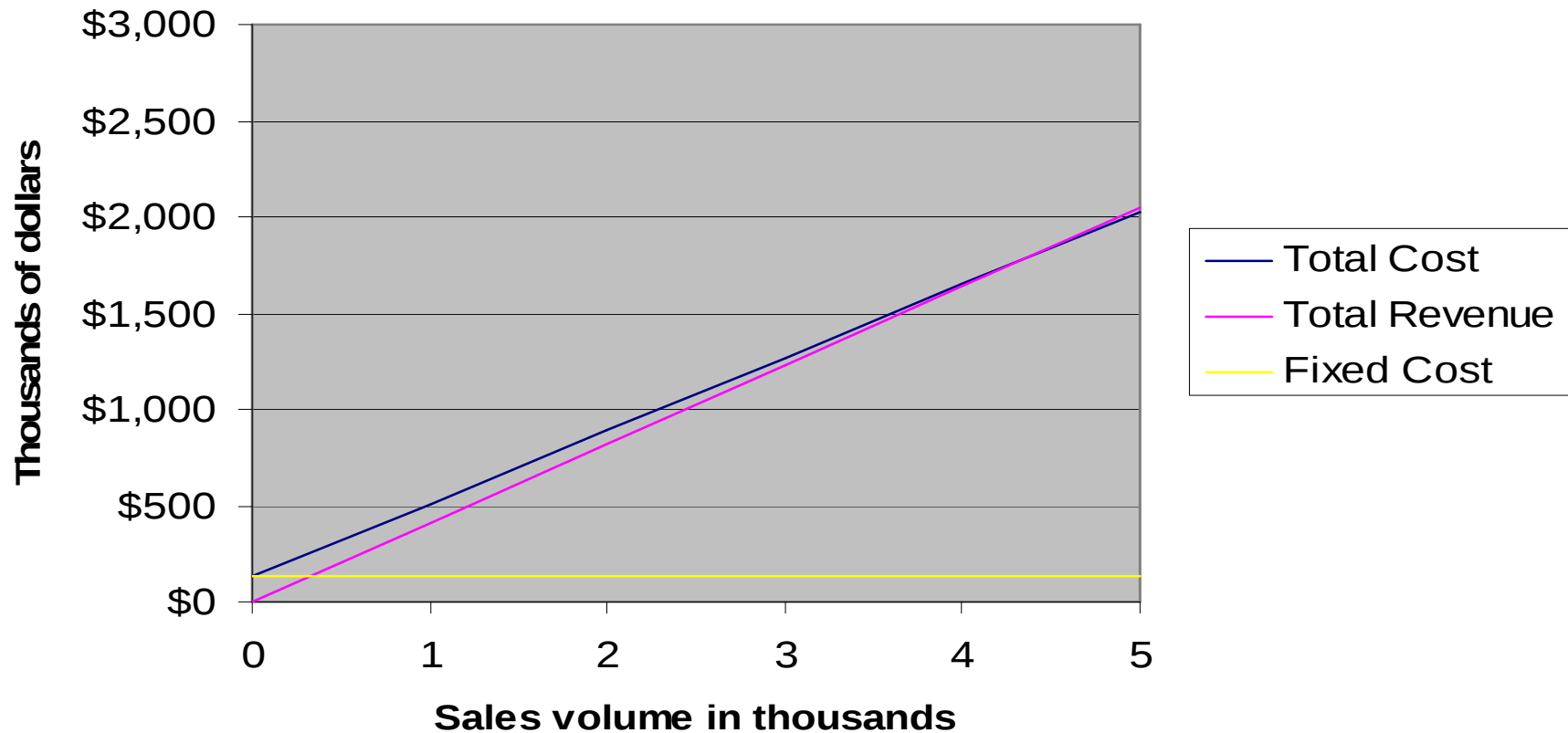
SALES FORECAST

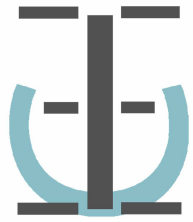
Year	Number of visually impaired people	Quantity (item)
2007	80,000	4000
2008	82,000	4100
2009	84,000	4200
2010	340,000	17000
2011	348,000	17400



BREAK-EVEN ANALYSIS

Break-Even at 4225 units





SWOT ANALYSIS

Strengths

- location of the offices
- unique in the market

Weaknesses

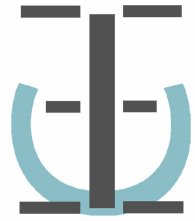
- forecast of the visually impaired may be erroneous

Opportunities

- arrival of GPS navigation maps for whole country

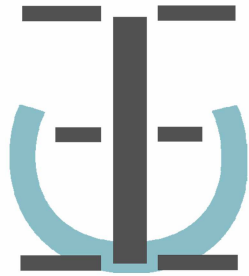
Threats

- high probability of reverse engineering



REFERENCES

1. <http://www.ozurluler.gov.tr/arastirma/troailerianaliz.htm>
 2. <http://www.nanopac.com/GPS%20Trekker.htm>
-



THANKS FOR LISTENING
QUESTIONS & COMMENTS