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WINS@HI
Wearable IoT Network Solution for Work Safety in Hazardous Industrial Environments

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Teaser

• **Main Goal**
  - Assessment of risks and preventing accidents
  - Improving work safety of underground workers
  - In case of occupational injuries and hazards
    - Tracking location of workers
    - Remote health monitoring
    - Guiding emergency and rescue units

• **Description**
  - Wearable sensor networks
  - Wireless underground / indoor communication
  - Data analytics
  - Network anomaly detection and monitoring algorithms
  - Disaster / emergency management

• **Status**
  - Project is labeled and due to start-up

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Organisation Profile

First and largest private R & D in Turkey
Netas shares in Istanbul stock exchange
Partnership with global technology leaders
Champion in Software Export
Global R&D Center of Nortel
Acquisition of Kron’s 10% shares
First 4G LTE project in Turkey
4G LTE ve Cyber Security products

Telecom Service Providers
Networking Solutions
Government and Public Safety
Cloud Solutions
ICT Security Solutions
M2M / IoT
Maintenance and Support Services
Custom R&D for Enterprises and Service Providers

48 years of experience, global presence, field proven hardware \ software & application development, 1500+ businesses, Turkey #1 converged (carrier and enterprise) system-integrator also serving the region

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Proposal Introduction

System Architecture

- Guide search/rescue units
- Mobile and web applications
- Network management/monitoring
- Anomaly detection algorithms
- Alarm management
- Location tracking
- Health monitoring
- Feature extraction
- Adaptive/machine learning
- Dynamic 3-D modeling
- Wearable sensors
- Energy efficient design
- Underground wireless comm.
- Scalable and robust

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• **Pre-accident use cases:**
  ▪ Health monitoring
  ▪ Remote sensing of threats
    • e.g. Methane, dust explosions, flood
  ▪ Early warning alarms to prevent disasters
  ▪ Robust underground communication
  ▪ Dynamic 3-D mapping
  ▪ Location tracking

• **Post-accident use cases:**
  ▪ Uninterrupted service after explosions or mine falls
    • Communication with miners
    • Precise location detection
  ▪ Guiding search and rescue teams in case of emergency

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Proposal Introduction

Work Packages

WP1: Management
• Project coordination and administration
• Technical management

WP2: Requirements
• Business model
• System requirements and specifications
• Design and architecture
• Definition validation use cases
• Standardization issues

WP3: Wearable sensor networks
• Wearable sensor hardware design
• Sensor mesh network
• Sensing of mine environment
• Location tracking
• Sensing of health status of miners

WP4: Wireless underground communication
• Utilizing frequency bands
• Antenna design
• Communication protocols
• Interoperability with rescue unit systems

WP5: Data analytics and monitoring system
• Iot gateway design
• Platform development
• Data analytics, anomaly detection
• 3D mapping
• Software applications

WP 6: Testing and integration
• Testbed
• System integration and testing
• System performance testing

WP 7: Disseminations and exploitations
• Disseminations
  • Standardizations
  • Training and public awareness
  • Publications
• Exploitations
  • Business model
  • New markets

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Partners

Current Partners

Turkey
- All WPs
  - NETAŞ
    - International Leader
  - İmbat Mining
  - Nesta
  - Korgün Software
  - Istanbul Technical University
  - Boğaziçi University
  - Bahçeşehir University

Czech Republic
- WP1, WP2, WP3, WP4, WP6, WP7
  - VUB Co
  - GiTy
  - Masaryk University (MUNI)
  - Technical University of Liberec (TUL)

Romania
- All WPs
  - BEIA Consult International

Prospective Partners

Canada
- NRC
- CEMI
- Newtrax
- Vandrico, Priwen Systems
- Accutron Instruments
- 6Harmonics
- Sensorup

Portugal
- Eurico Ferreira (PROEF group)
- Centi
- LIPOR
Partners

Are you interested in joining?

Please let us know about the WPs that you would like to be involved!
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