

EMERGENCY NOTIFICATION SYSTEM

o TEAM MEMBERS

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BACKGROUND



Problem Formulation

Problem Definition: The existing system on Howard University's campus i.e. (AlertHU, Call boxes) is not adequate for notification in emergencies.

Technical liabilities:

Switching systems become overloaded
Limited frequency channels become blocked
Government agency's can stop cell phone transmission
Call boxes often do not function

Design Requirements

Constraints:

- Inform within 3- 5 minutes of incident report
- Operative temperature range of -40F to 149F
- Indoor audio output sensitivity of 94dB
- Visuals displays viewed from 25m
- Cost

Knowledge used:

- Programming
- Digital Systems design
- Telecommunications

Regulations:

- United Facilities Criteria 4-021-01 Design and O&M
- Americans with Disabilities Act standards by synchronizing audio and visual messages
- Complies with Occupational Health and Safety Administration 1910.165 for employers that use an alarm system

Emergency Notification System Solution Approach

- Under the assumption that Howard University is our client
- Emergency phone message received via campus police alert
- System located in police office, initiated by operator who chooses emergency from prompts
- Base station transmits datagram socket message over the internet to remote station
- Remote station receives socket message; runs the assigned notification media through various hardware outputs







Alternative Solution

- Alternative Transmission Technique: Radio Frequencies
- Radio frequencies can be utilized to transmit signals
- RF transmits waves that correspond to the binary code
- RF are received as binary code at remote stations.
- Remote stations with radio receiver will run binary code as command for hardware output.



Output

TASKS & PROJECT MANAGEMENT

- Research September and October
- Proposal presentation / board review November
- Research / code writing December
- Code writing– January
- Equipment purchase / building prototype January & February
- Phase 1 testing February
- Back to drawing board February and March
- Rebuilding of prototype / phase 2 testing March
- Final building and delivering of ENS April

Verification Plan

2 phases of testing

1st phase:

- Run programming codesRun simulations to check for95% efficiency
- •Check that system adheres to regulations
- 2nd phase
 oFixing Problems
 - •Testing Again

Deliverables

- ENS prototype
 - 2 Computers, FPGA, Speaker





COST AND RESOURCES

- The following resources will be required for our system:
- Audio communication system: \$200
- Visual display unit: \$500
- 3. On-network screen messaging: \$50
- 4. Miscellaneous: \$100

Total: Approx \$850

CONCLUSION

- Dire need for effective notification system
- Plan of attack: UDP, socket programming, hardware interface
- Design lifecycle : September 2007 – April 2008

