E-BELL – SURVEILLANCE SYSTEM USING 3G/GRPS SHIELD

Ewane Payeye Kizito (EE) □ Quan Long (EE) □ Jaya Chandan Goli (EE) □ Job Alex (EE) □ Doug Schopmeyer (EE)

payeye.kizito@gmail.com □ longquan@gmail.com □ Jayachandan.Goli@utdallas.edu □ jalex092020@utdallas.edu □ dstoreyn6268@utbcglobal.net

Faculty Mentor: Professor Andrea Fumagalli
Corporate mentor: Craig Lee, Thomas Schleef

Department of Electrical Engineering | University of Texas at Dallas
Erik Jonsson School of Engineering & Computer Science | Richardson, Texas | 75083-0688, U.S.A.
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GOALS
- Design and fabricate a new surveillance system to:
  - Minimize the feature size of the system by integration of the microphone, an amplifier, a camera, an antenna and a mount that will be rotating using servo-motors integrated within.
  - Take pictures of individuals at the door
  - Send data into the cloud that a user can access
  - Explore the use of TCP Node-Red and Wireless Transmission over 3G network.

RESULTS

Dipole Antenna:
- Tested the antenna using the vector network analyzer
- The antenna works at 850MHz
- Antenna consists of two copper wires soldered on a PCB board mount connector.
- Have used Arduino connector to connect the antenna to the Arduino. This will allow the data transmission from Arduino to server.

Communication between Arduino and FTP server:
- Data is stored locally on the MicroSD card first, and then programmed to ping the server to upload the data.
- Data is display on the webpage.
- User input on the webpage is processed over Node-red.

Physical doorbell:
- Physical doorbell is LHW 36 x 18 x 2 inch
- The Arduino board is feed to the door at the top to recognize the movement and trigger the sensors.

Relay/Power distribution:
- Problem: Inconsistent 20V AC power signal.
- Solution: Voltage divider using 1M ohm and 330K ohms.
- Using this approach we can also control the current flow to the main circuit board according our needs.

CONCLUSION

The doorbell will be used as a sensor to activate the Arduino board which in turn initializes the camera. When the camera senses any movement in front of the door, it will take a snap of the trigger and send it to the cloud using 3G shield. Then the end user can access the picture through the server webpage and reply back to the server. Which for now, rings the doorbell.

ETHICS
- Performed the project based on the resources available and technical expertise.
- Reported progress and any obstacles we were facing duly to the respective authorities.
- Gave credit to the appropriate references, without any disturbances.