

BME 484 Biomedical Engineering Capstone Design  
**Project Proposal**

Project Title: Using eye-blink detection for patients to call for a nurse.

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Abstract: The problem is that people who are completely paralyzed with the exception of eye movement need an easy way to call for a nurse if they need something. We propose using eye-blink detection to call a nurse. By the patient doing a specific series of blinks, the BLIP camera will recognize that the series represents a specific need. A message will then be sent to a nurse's phone saying that the patient is in need of something, such as food, water, assistance, or the bathroom.

Innovation: It is a new way for people who are paralyzed to communicate with their nurse.

Materials: BLIP Board, ICE 1000, 3-D printed protective case, tri-pod, previous teams code. License for Cross Core,

Subtasks: Go over previous teams code and hardware.  
Develop new code that recognizes a series of blinks.  
Develop an app for the nurse's phone to get the alert.  
Have the code send an alert to the app, notifying the nurse of a patient in distress.

Timeline: See attached excel spreadsheet.

References: Huang Q, et al. 2017. "An EOG-Based Human-Machine Interface for Wheelchair Control". Website. <<https://www.ncbi.nlm.nih.gov/pubmed/28767359>>  
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