

6.111 - Auto-Targetting in a Remote Sentry Turret

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Sentry Overview

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 - Manual mode that allows users to pick targets to fire on.

Components

- Jacky's Part
- Stephanie's Part
- Eli's Part

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 - Movement
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 - User Interface
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- Eli's Part

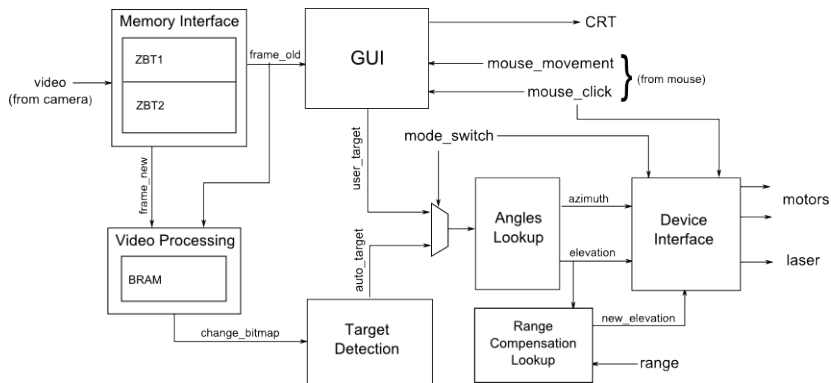
Components

- Jacky's Part
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 - User Interface
- Stephanie's Part
 - Motion Detection
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 - Video Processing

Block Diagram





Video Processing Module

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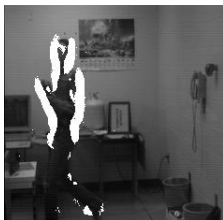
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- If the Euclidean distance between the two values exceeds a threshold, a high value is stored in a separate edge-detection array.

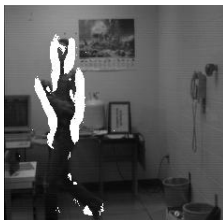
Video Processing Module

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- Both ZBTs will be used for this module to allow simultaneous processing and display of the video.

Motion Detection Module

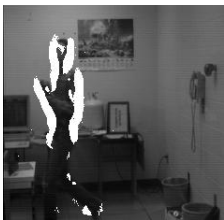


Motion Detection Module



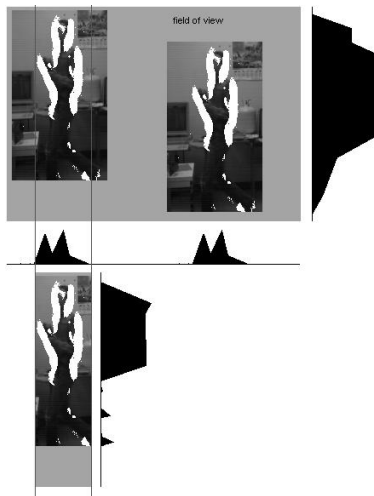
- Searches the array generated by video-processing for a good candidate target

Motion Detection Module



- Searches the array generated by video-processing for a good candidate target
- People generally show up in change bitmaps as vertical smears

Motion Detection Module

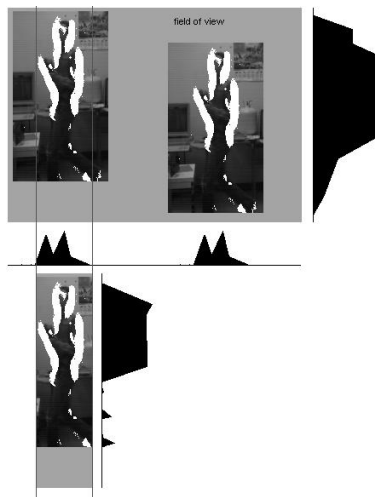


Motion Detection Module



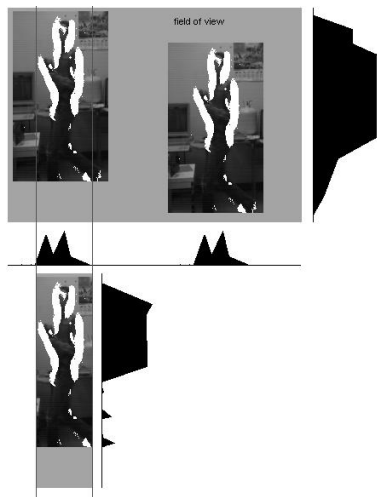
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Motion Detection Module



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- The center of this column block is the x-coordinate of the target center
- A horizontal histogram of only the pixels within this area of interest identifies the y-coordinate of the target center

User Interface

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- Reads display from the ZBTs, and takes target pixel from Motion Detection module, mouse input and user input to determine manual or autofire mode.

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- Tracks movement of the mouse and sends its pixel location to the Movement module.
- Uses user input to choose which pixel target to send to the Movement module.

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- Sends a fire signal when movement is complete, if in autofire mode, or when a mouse click is sense, when in manual mode.

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- 11/22
- 11/29
- 12/6

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 - Working prototype.