MRSD Project

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Team G / Robographer

Teammates: Sida Wang, Gauri Gandhi, Jimit

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Individual progress

We mainly focus on getting API working on Ubuntu 12.04, which is the only version works on our turtlebots at present. At first, the keyboard cannot control the Intraface properly. With the help of Joan Navarro from Fernando's lab, the problem is solved now.

To read the key from the keyboard we are using the function cv::waitKey from OpenCV which allows us to perform a non-blocking polling from the keyboard. This method returns a signed integer value (assume it's 32 bits) containing the ASCII code of the key pressed or -1 if no key was detected. For some reasons OpenCV was setting one of the higher bits of the read key to 1. That is, converting our desired Esc 0b00000000000000000000000000011011 to another value (in the sense that least significant bits were still consistent but something weird happened on the most significant ones) such as 0b00000000000000100000000000011011. To fix that, what we did was to simply mask the read key with 0x0FF when comparing it with 27 (i.e., 0b00000000000000100000000000011011 & 0b00000000000000000000000011111111 = 0b00000000000000000000000000011011). The OpenCV site (Does waitKey() work correctly in Linux?-http://answers.opencv.org/question/44971/does-waitkey-work-correctly-in-linux/) said that this has something to do with the locale configured on the system.

Challenges

1. Intraface shot down in 5 minutes
2. There's only a single instance of the tracker (i.e., the line unique_ptr<SDM> sdm(SDM::getInstance("../../models/tracker_model49.bin", &lm))

Teamwork

Sida and I were working on making Intraface and Linux compatible with each other, for Intraface was first developed and worked on Windows system. On the other hand, Rohit, Gauri and Jimit focused on getting turtlebots functional on obstacle avoidance and making pan-tilt unit's servo motors working.

Figures
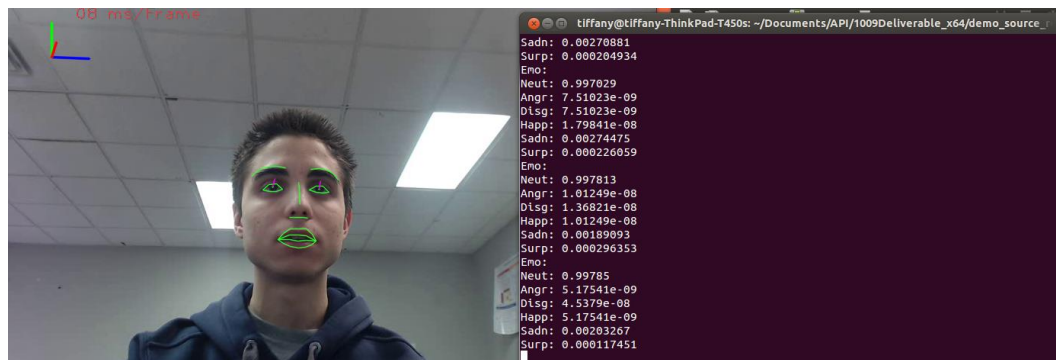
The demo video and expression analysis results (Neutral, Angry, Disgusted, Happy, Sad and Surprised) from Intraface

Future Plans

1. Setting a reboot mechanism for Intraface in case of shutdown.
2. Start to learn how to make Intraface work on multi cameras.
3. Maybe using unique pointers (http://en.cppreference.com/w/cpp/memory/unique_ptr) to avoid memory leaks, which could be the main reason of the shutdown.