Final project - Technical report

Part 1 – introduction:

Part 2 system architecture:

A diagram of a computer program

Description automatically generated

Part 3 implementation details:

**IOT devices –** 5 camera devices.Each camera is implemented in our local machines as a python file running inside its own docker container. Each of the containers is emulating a camera using datasets from Wisenet and extracting a frame every 1 seconds. Thus the frames are being sent to the edge devices every 1 second. Cameras 1,2,3 are sending the frames to the first edge device through a nat server. Cameras 4,5 do the same to the second edge device. After sending the frames the cameras also wait for a response from the edge regarding the detection of an unknown person. If a respond is sent back to one of the camera with a confirmation of an unknown person the camera turns on the alarm.

**Edge devices –** 2 Edge devices. Each of the edge devices is implemented as a python file running inside its own individual docker container. The 2 edge devices are subscribed to the cameras frame channel. Every time a frame is being sent to one of the edge devices it immediately checks via its Yolo detecting algorithm, whether the frame contains a person or not. Every time the edge detects a person it will sent the frame with the person up to the cloud service. The edge device will get a respond from the cloud service whether the person is known to the system or not. If the person is known to the system the edge will send a negative respond to the alarm system. Else, the edge will send a positive response to the alarm system to turn on the alarm.