User Manual

Project Overview

FIT is a framework that allows users to create complex IoT applications that involve stream processing, event processing, and **complex event processing**.. FIT is a generic framework aimed to be usable by the diverse users of CEP. A GUI is built upon the framework for generic as well as specific applications. Our GUI will enable users to use some components to create the application's pipeline. These components include:

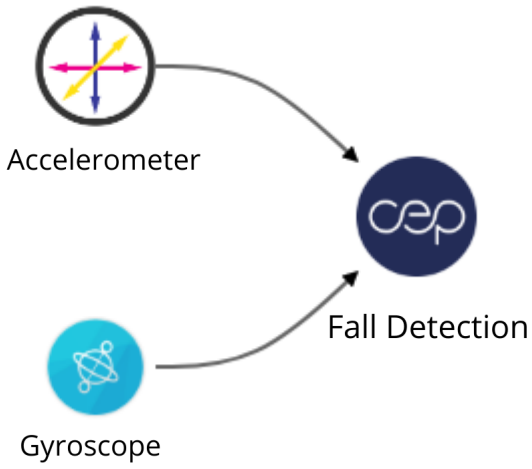
- Sensors (it will provide data in the form of streams from sensors(we will use Virtual sensors to test our application)).

- Operators (which can contain different functionalities such as object detection Algorithm, fall detection Algorithm, etc.)
    - o Input (From one or more sensors or operators)
    - o Output (Single – result of the applied algorithm)

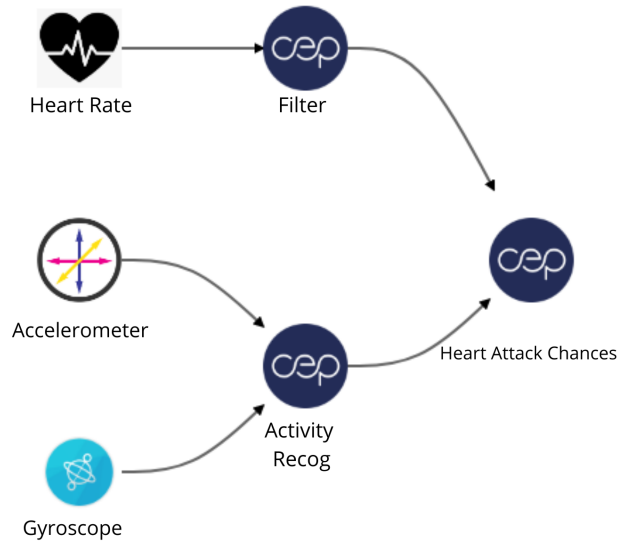
- Alerts (Messages/Triggers/Automated Actions).

As a proof of concept we will add different Virtual sensors, operators and alerts that can be found in old homes. This will enable caretakers to create complex scenarios by using a simple configurable graphical user interface. It will help them to automate old homes according to the needs of each individual resident. Our framework will also help users to deploy and run these scenarios on different remote machines.

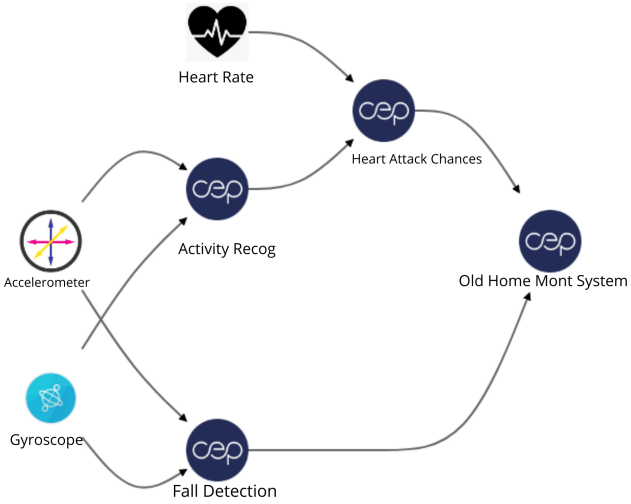
Example Scenario Number One : Fall Detection



Example Scenario Number two : Heart Attack Chances



We can also combine two above scenarios like this :



How to run the project:

1 - Download the setup_FIT_Application.sh and run it, it'll setup everything.

5 - Open Browser

Visit http://localhost:4200/

Now you can create different pipelines

6 - How to use Virtual sensors

i) To add a heart sensor, enter **/dataset/HR/heart_rate_sensor_data.txt** in **IP/File** field.

ii) To add a gyroscope, enter **gyr.txt** in **IP/File** field.

iii) To add accelerometer, enter **acc.txt** in **IP/File** field.

iii) To add fall detection enter **./sensors/dataset/fall_detection/cs4.mp4** in surveillance camera sensor's **IP/File** field.

Note : these restrictions will be removed in final product

7 - Deploy Code:

i)After making pipeline click on Deploy button

ii) A dialog box will open

iii) Enter "Destination IP" (device on which you want to deploy your code)

iv) Enter "Destination Username" and "Destination Password"

v) Then Click on ADD and your code will be deployed

8 - Run Code/Application Pipeline:

i) Open terminal.

ii) Navigate to **./Application-Code.**

iii) Run **start_kafka.py** which is necessary for the communication between nodes.

iii) Run **main_file.py** which is the main controller class and whose code is generated.

iv) The output will be displayed either on terminal or email(as alert) based on the configuration you have chosen while making the pipeline.

9 - How to add a New Node (Operator/Sensor) :

i) Video Demo - https://youtu.be/p22H7l7aYvc