IBPSA Project 2: BOPTEST
Task 2
Virtual Progress Meeting

03/26/2024
10:00 AM – 11:00 AM U.S. Eastern Time

Participation

	Name	Affiliation
1	Lieve Helsen	KU Leuven
	Jelger Jansen	
1	Javier Arroyo	WEDOCO, dnergy
	Filip Jorissen	Builtwins
1	David Blum	LBNL
	Michael Wetter	
	Christoph Gehbauer	
1	Ettore Zanetti	
1	Zhe (Walter) Wang	Hong Kong University of Science and Technology
	Dan Wang	
	Wanfu Zheng	
	Piljae Im	ORNL
	Yeonjin Bae	
	Sen Huang	
	Yan Chen	PNNL
1	Xing Lu	
	Draguna Vrabie	
	Laura Zabala	R2M
	Vadim Liventsev	
	Roel De Coninck	dnergy
	Iago Cuepero	
	Bart Merema	
	Harald Taxt Walnum	SINTEF
	Gaurav Chaudhary	NTNU Norway
	Esther Borkowski	ETH Zurich
1	Kyle Benne	NREL
	Matt Robinson	University of Colorado-Boulder
	Peder Bacher	DTU
	Matthias Van Hove	
	Konstantin Filonenko	
	Sicheng (James) Zhan	National University Singapore
	Rossella Alesci	Politecnico di Milano
1	Davide Fop	Politecnico di Torino
	Zheng Oneill	Texas A&M University
1	Mingzhe Liu	
1	Kun Zhang	École de Technologie Supérieure (ÉTS)
1	Alireza Yaghoubi	
	Xuezheng Wang	Syracuse University
1	David Wolfle	FZI
1	Jan Marco Ruiz de Vargas	Technical University of Munich

Total: 13

Agenda

Generally, updates to ongoing initiatives and discussion of possible new initiatives.

Announcement: Targeting BOPTEST Release v0.6.0 in next week or two.

1. Ideas for new initiatives [All]
    - New KPI - Actuator travel [Dave]
        i. See presentation. Purpose: Quantify the frequency of equipment and actuator switching caused by the control system throughout the evaluation period. Gives a measure of phenomenon like cycling and hunting
        ii. Questions/Comments:
            1. Why use? – Impact on equipment and actuator degradation and maintenance.
            2. How account for time needed between two actions, such as minimum on/off times of heat pump? – This should be in control logic within emulator.
        iii. Group agrees would be good to have.
        iv. Xing and Jan agreed to work on. To be in touch with Dave to get started.
    - Sensor/measurement uncertainty [Dave]
        i. Purpose: represent realistic measurement noise, bias, or other data issues.
        ii. Questions/Comments:
            1. Inside or outside emulator? - Dave thinking inside to have baseline controller sensitive to uncertainty and test controller exposure to uncertainty may depend on sensor choice. Javier in favor of installation that goes outside emulator since baseline is continuous. Also, could be natural to choose different sensors with different uncertainty.
            2. Use uncertain temperature or real temperature for comfort calculation? – Use real temperature since that is what would be felt in space.
            3. Concern - Large building with a lot of rooms may propagate bias.
            4. Will users need to specify lots of parameters? – Need to manage tradeoff realistic and user friendliness. Use enumerated scenarios of uncertainty levels similar to weather forecast uncertainty approach, and other scenarios.
        iii. To discuss again at future meeting.
    - Other ideas people are welcome to bring forward
        i. No items.
2. Weather forecast uncertainty [Laura and Zhe]
    - Zhe – Wanfu created PR and Laura reviewing updates within a month.
    - Comments from David W:
        i. There is a large weather and forecast provider that gives forecasts – can train model with more cities?
        ii. Is AR model the best one? ARMA, etc., or ANN, or Prophet? - Many possible choices, important to understand why AR. Investigate how came to decision. Dave/Zhe to look at notes from earlier work in Project 1.

3. Repo Refactor [Dave]
    - No update from last time. Status remains: PR with working version of Service integrated into BOPTEST repo made (https://github.com/ibpsa/project1-boptest/pull/622). Javier and Kyle to review. Javascript controller example being updated by Sen. Dave to continue on updating documentation etc. while reviews.
4. Online Dashboard and Service [Dave/Kyle/Harald]
    - Harald and Dave added (merged to repo) storing of results .csv (point trajectories) and .json (KPIs and other test parameters) in the test case docker container disk at the end of scenario run, so can be downloaded later from Service if testid known.
    - Kyle made some updates to Service based on testing from Dave and Harald for improved test case and user access and management and is deploying on development server for final testing before deployed to production server.
5. DOPTEST [Javier]
    - Worked on PR for disaggregated KPIs addressing Dave's comments.
        i. Tests didn't pass.
        ii. Documentation issues – users guide and design guide in two different places in repo. Dave/Javier to discuss.
    - No update on modeling.
    - Lieve has project running at KU Leuven where 4 phd students working on district level and finding ways to collaborate stronger and looking at "Layout 4." To test controllers.
6. OpenModelica compilation testing and library updates [Ettore]
    - Out of time.
7. Semantic modeling [Ettore]
    - Out of time.