

**BOOL-DOSER TEAM**

PRESENTS

# Main point of the project – creation of an unstable system

## Unstable system

- Stability is violated for arbitrarily small perturbations
- Strive to take the most favorable energy level

## The process of mixing liquids in an unstable flow

- To create the stability necessary to take account of the changing parameters of the environment
- No control action will not work

# Solution

The basic scheme of work

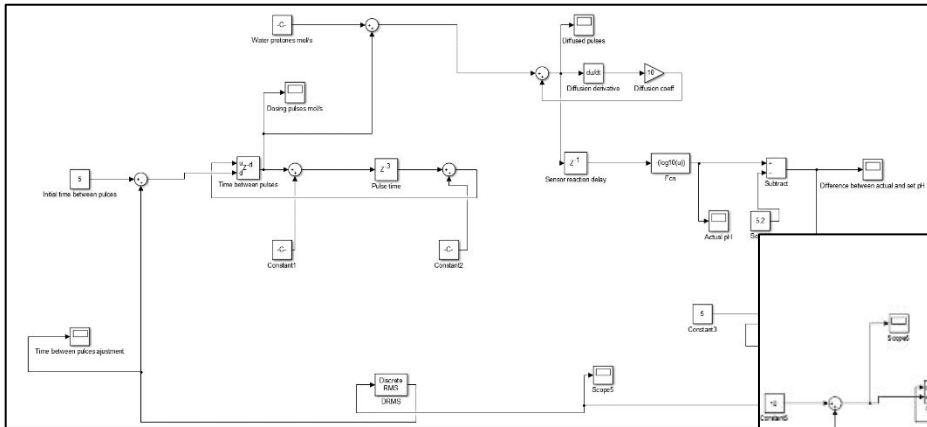


Uncontrol  
outside  
condition:  
Water flow

Control  
action:  
Dosing of  
reagent

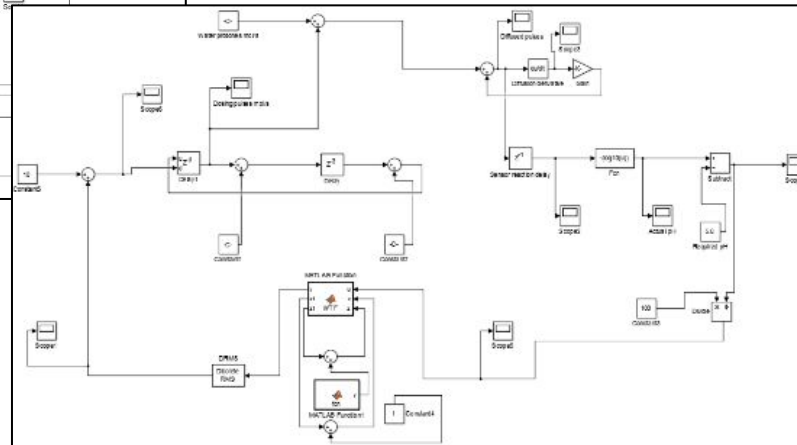
# Process

Building relationships between the main elements in Simulink



1

2



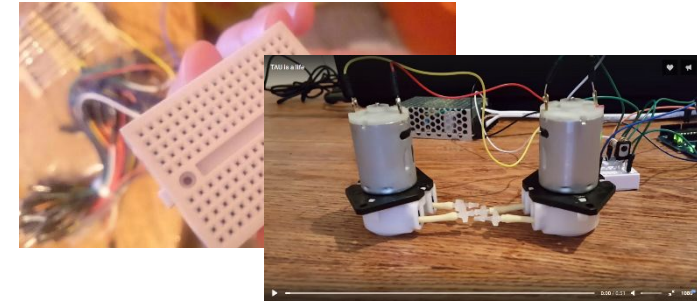
3

# Assembly and coding

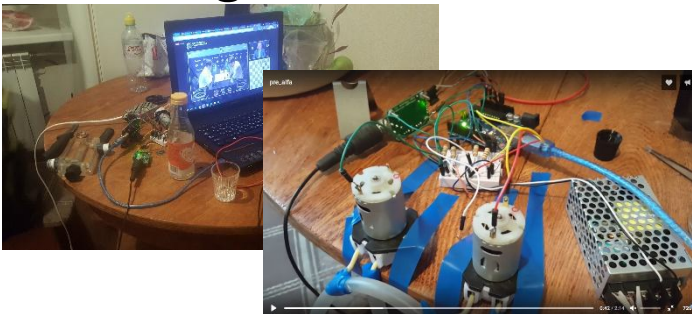
Step 1 – connection components to Arduino and functional test



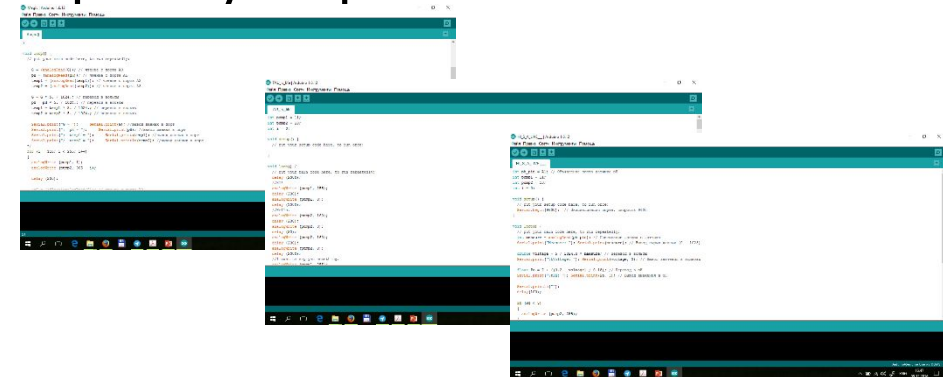
Step 2 – checking possibility to control components individually



Step 3 – test management capabilities bundled together












Step 4 – development of processes to adequately respond to external stimuli



- Running, math model mismatch

# Table of engineering solutions



Low construction tightness			
Pump control had dead zone			
The accuracy of the sensors was lower than expected, plus noise			

# The result

- Confirmation of performance



# TeamDream

Dubov Oleg – the chief engineer, the developer of a mathematical model

Kamyshanova Regina – Project Coordinator, Controller works

Petrenko Aleksandr – assistant chief engineer, logistician procurement

Smirnova Tatiana – translator, a representative of the team, the assistant organizational work

Romeskiy Denis –

Shchecaturov Nikita –

**THANK YOU FOR ATTENTION!**

Place for contacts: