

ROBOTIC CENTER ON THE BASIS OF "MARA 2M" UAV

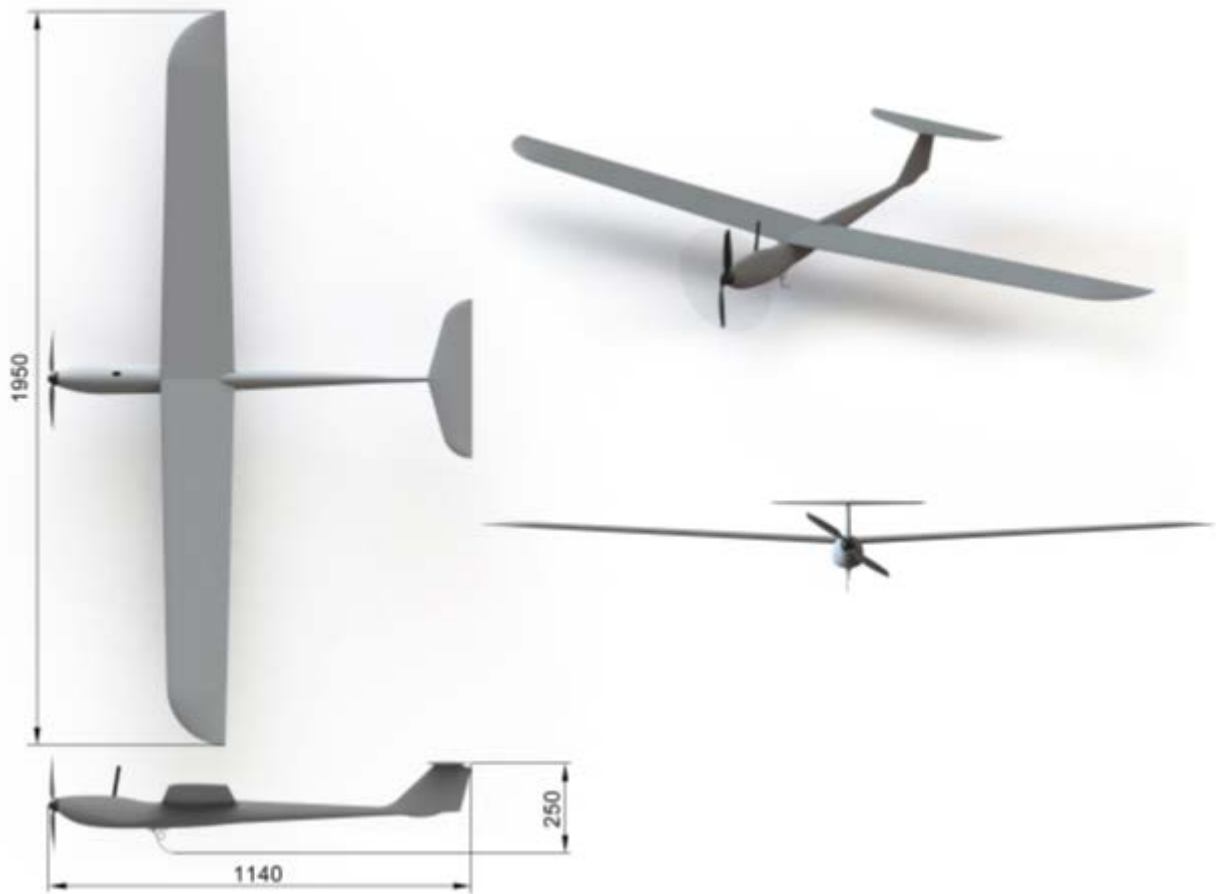


System on the basis of UAV - "Mara 2M" is designed for protection, monitoring and search of objects on a distance up to 25 km.

Payload of UAV "Mara 2M" allows to surveil in the visible or infrared spectrum with a resolution of 5cm per the point.

Software package allows to make a quick plan of a mission, to change it during the flight, to execute efficient binding of the objects to the maps and get its coordinates in geographical and rectangular coordinate systems.

UAV "MARA 2M" PERFORMANC FEATURES



- Operating range up to 25 km
- Flight duration - 50-90 minutes
- Range up to 75 km
- Adjustable flight speed from 30 to 100 km/h
- Operating altitude 50-750 m
- Practical ceiling 2000 m
- Electric power plant
- Battery of LiPo or LiFePO4 type with capacity up to 6.5 Ah
- Payload Weight up to 0.4 kg
- Allowable wind speed up to 14 m/s

SYSTEM KEY BENEFITS

- Interface and software ideology meet STANAG4586 standard
- Secured and encrypted communication channel
- Compact and light weight of the complex allows to carry it over and operate autonomously by two-man fire crew
- Fully automated flight with ability to change the mission in progress
- Ability for accurate landing in semiautomatic mode in limited areas due to wing-flap system
- Preparation for launch and deployment time not more than 10 minutes
- Ability to use different payload options
- Availability of sidelights which allows landing at darkness hours
- Low noise level due to good aerodynamics and the use of electric power plant
- High positional accuracy of exploration target
- Modern software with “friendly” interface
- Ease of assembly, modular construction and ability to interchange parts and assemblies
- High strength, stiffness and survivability of UAV Kevlar construction
- Good in-field maintainability of UAV

SYSTEM COMPOSITION

- UAV "MARA 2M" - 3pcs (possibility to use UAV with different payload in a single complex)
- Ground Control Station (GCS):
 - Automated workstation of pilot-operator;
 - Automated workstation of payload operator;
 - Terminal of receive-transmit data line (TRTDL);
 - Remote control

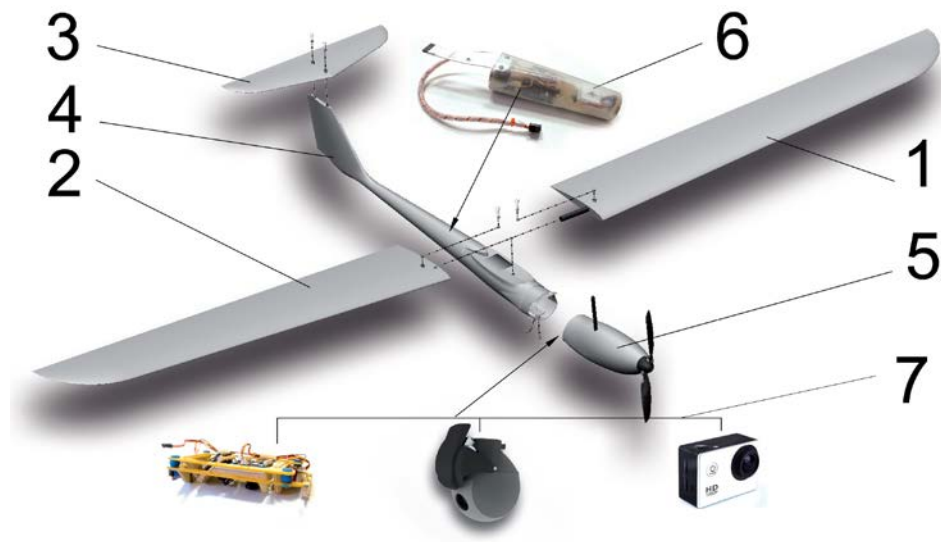


- Table-case with PC equipped with sun and weathering protection visor
- Spare tools and accessories kit

Additionally, the complex can be equipped with:

- Telescopic antenna mast with height up to 6m;
- Automated TRTDL follow-up device;
- System of wireless data transmission between and TRTDL GCS

COMPOSITE MODULUS OF UAV "MARA 2M"



1 - left wing console;

2 - right wing console;

3 - horizontal tail;

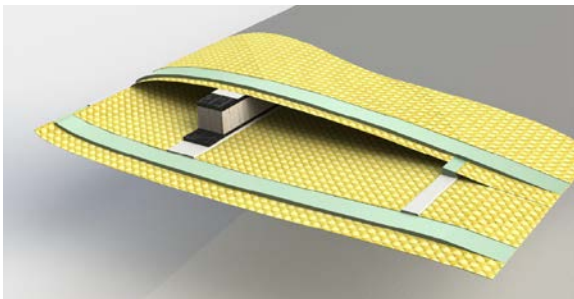
4 - aft fuselage with the control unit;

5 - nose fuselage with electric power plant and payload

6 - control unit;

7 - payload options:

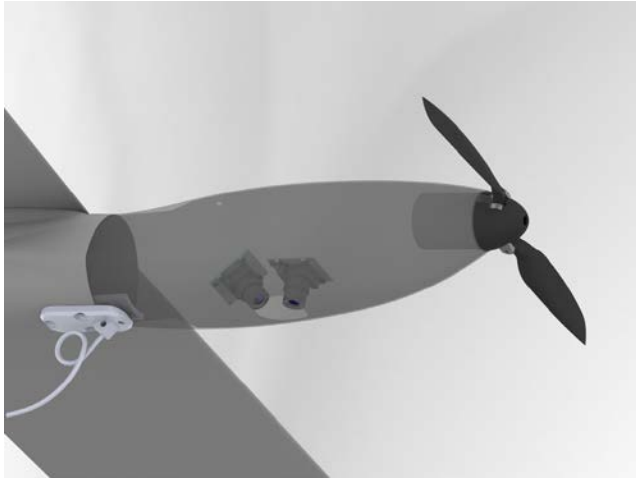
- Basic platform of cameras
- Low platform
- Reconnaissance camera



The use of high-strength kevlar fabric made it possible to substantially increase the strength and survivability of UAV during operation in extreme conditions.

PAYLOAD OPTIONS

BASIC PLATFORM CAMERAS



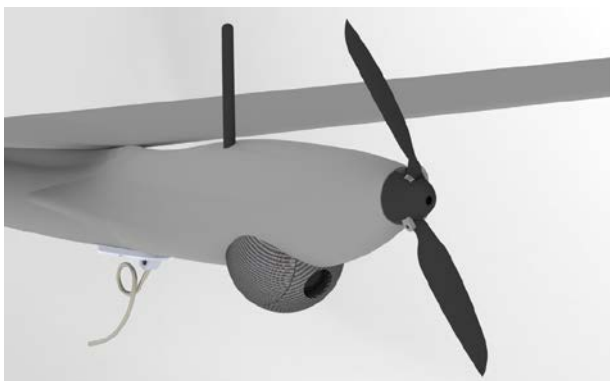
- Amortized platform stabilized by bank angle
- Course camera installed at angle of 45° to the UAV axis with a 1.3 megapixel sensor and sensitivity from 0,02 candle-meter
- Survey camera directed vertically downwards, able to record high quality video (FullHD 1080p)
- Possibility to switch between cameras in flight
- Transfer of analog video signal to the ground control station.
- Ability to work in close infrared range (CIR)

RECONNAISSANCE CAMERA



- Onboard photographic surveying at resolution of 5cm per point.
- The size of a picture is 3680x2760 pixels
- Transfer of analog video to the ground control station
- Dimensioning of pictures to the ground map
- Prompt coloured glass replacement
- Real time coordinates calculation

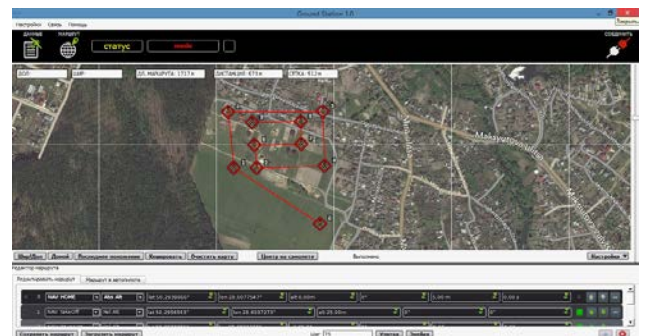
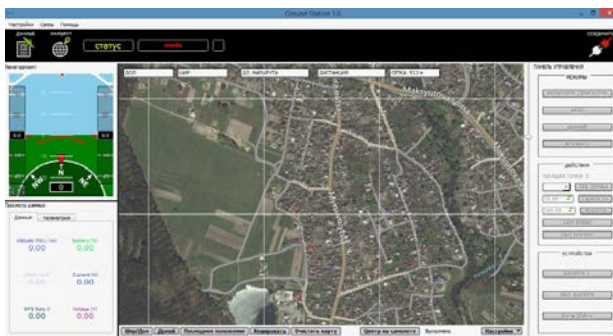
NIGHT-TIME PLATFORM



- Thermal camera (resolution 640x480 pixels, frame rate of 50 Hz and sensitivity 8-16 mkm) with a constant focal length
- High sensitivity night camera of the visible spectrum
- The ability to switch between images from the cameras in flight
- Transfer of analog video to the ground control station
- Ability of real time calculation of objects' coordinates

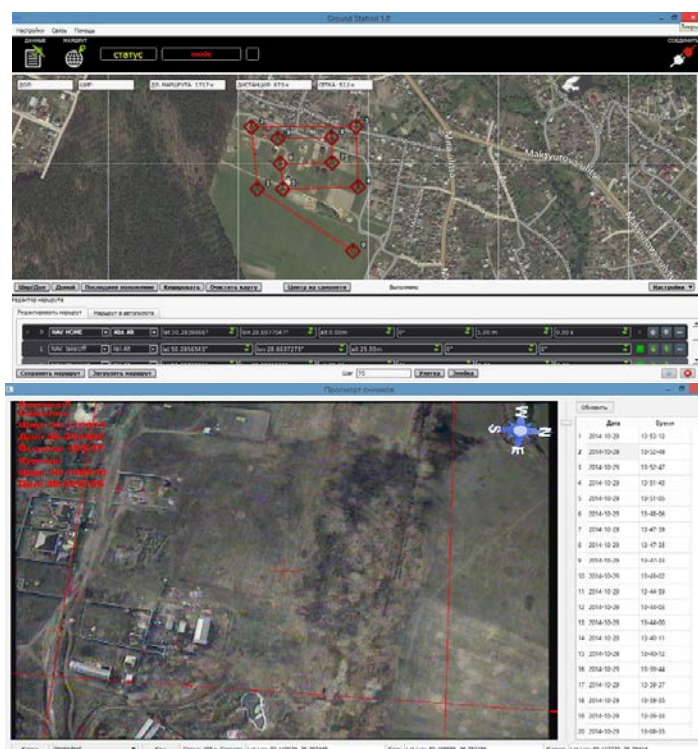
SOFTWARE PACKAGE CAPABILITIES

Software package of "Mara 2M" ground control station allows to control UAV flight and process the information received from payload in real time.



Software package of pilot-operator workplace allows to control the main parameters of UAV flight, to create and update flight program. Pilot-operator may also analyze video and photographic materials.

Software package of payload operator allows to process streaming video, to perform target detection, to set object's coordinates and display them on the map.



ADDITIONAL EQUIPMENT OF "MARA 2M" SYSTEM

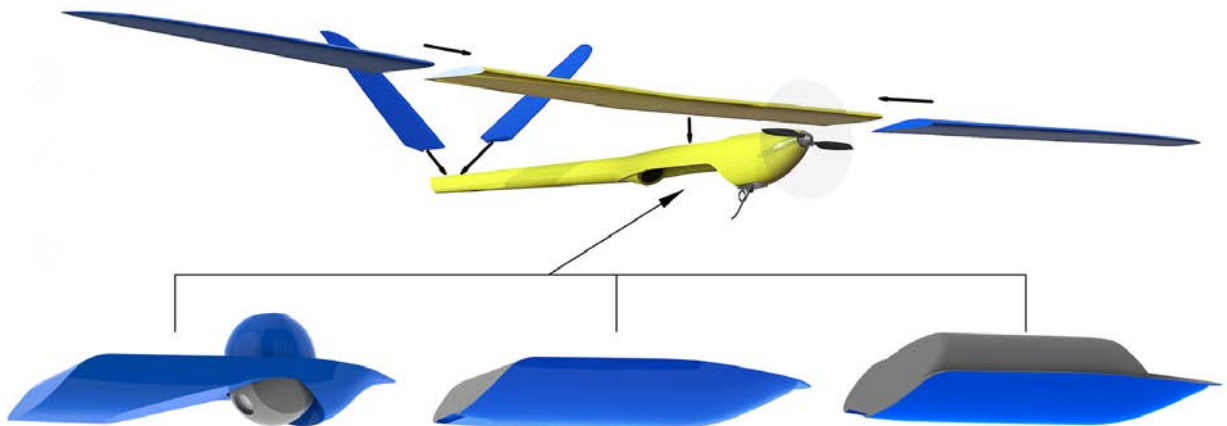
- Emergency Search System (GSM-tracker)
- Flying over three-dimensional area map
- Automatic landing system
- Digital communication channel and data transmission based on COFDM technology
- Ability of remote control and data processing by satellite communication channel
- Automated tracking antenna
- Telescopic antenna mast
- Ability to work with mapping information in ArcGIS system
- GCS can be made with IP67 protection standard and consist of one unified working place aimed for UAV control and data processing on the basis of its own software (under testing)

OTHER PROJECTS: UAV “MARA 3M”

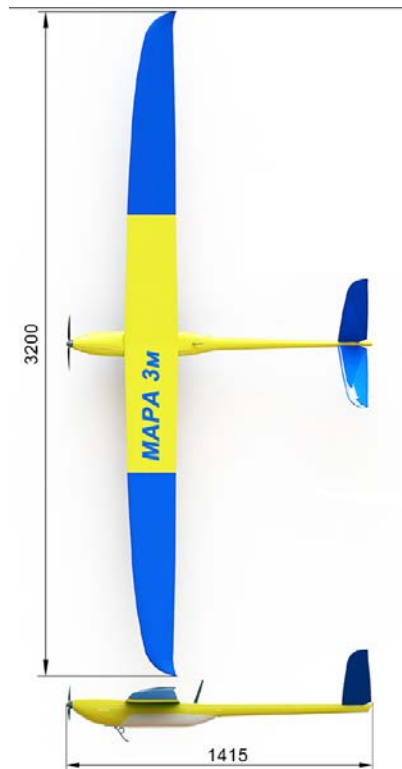


Due to possibility of long run and considerable mass of useful payload, UAV may be equipped not only with CCTV equipment, but also fitted with another equipment of durable exploitation.

Field replaceable payload modules ensure multitasking of UAV “Mara – 3M”



"MARA 3M" UAV PERFORMANCE FEATURES



- Wingspan: 3200 mm
- Wing area: 64.5 dm²
- Length: 1415 mm
- Height: 350 mm
- Take-off weight: the 7 kg
- Range: up to 50 km
- Duration of flight: 120 minutes
- The route: up to 150 km
- Adjustable speed: 30-100 km/h
- Operating altitude: 100-750 m
- Practical ceiling: 2000 m
- Electric power plant
- Battery LiPo or LiFePO₄ with capacity up to 20 Ah
- Payload weight: up to 3 kg
- Allowable wind speed: up to 15 m/s

PRODUCTION

In-house serial production in guarded area.



Our company has a complete cycle required for the development and production of UAV:

- 3-D modeling using license SolidWorks 2015 software package
- Have an equipment for design, development and adjustment of electronics, high-frequency equipment and antennas
- in-house production of composite UAV parts and units
- own development of onboard and ground software
- team of experts with years of experience