```matlab
function x_est = kalman(y, u, sys_init)
    %% Declaring persistent variables

    persistent x_est_ A B C E H Q R P_ init

    %% Initialisation
    if isempty(init)
        init    = 1;
        A       = sys_init.A_d;
        B       = sys_init.B_d;
        C       = sys_init.C_d;
        E       = sys_init.E_d;
        H       = sys_init.H_d;
        P_      = sys_init.P_0_;
        x_est_  = sys_init.x_est_0_;
        Q       = sys_init.Q;
        R       = sys_init.R;

    end

    %% Update y_est_

    y_est_ = C*x_est_;

    %% Calculate Kalman gain

    K = P_*C'*(C*P_*C' + H*R*H')^-1;

    %% Find a posteriori x_est

    x_est = x_est_ + K*(y - y_est_);

    %% Update covariance matrix P_

    P = P_ - K*C*P_ - P_*C'*K' + K*(C*P_*C' + H*R*H')*K';

    P_ = A*P*A' + E*Q*E';

    %% Update x_est_

    x_est_ = A*x_est + B*u;
end
```